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JUL 3 1987

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1 of 42

This reference volume contains motor vehicle safety standards, regulations and amendments issued through 1980. Amendments and new standards issued since 1980 will be contained in supplements to be published monthly as part of the subscription series.





U.S. Department  
of Transportation  
**National Highway  
Traffic Safety  
Administration**

# Federal Motor Vehicle Safety Standards and Regulations

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With Amendments and  
Interpretations Issued through  
December 1980

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## Foreword

This reference volume contains Federal Motor Vehicle Safety Standards and Regulations, including amendments and interpretations, issued through December 1980.

The volume is divided into three sections. The first section contains procedural rules and regulations. The second section contains the standards. The third section contains Rulings and additional regulations.

Each section is sub-divided into Parts which correspond to the Part numbers appearing in the *United States Code of Federal Regulations*, as shown in the following examples:

*Part 551—Procedural Rules*

*Part 567—Certification*

*Part 571—Motor Vehicle Safety Standards*

*Part 575—Consumer Information*

The arrangement of the Parts within a section consists of preamble material, followed by the applicable standard or regulation. To simplify the incorporation of amended material into the text, amendments are issued as full replacement pages, with each page having the same page number as the page it replaces.

The page numbering system is designed to keep related materials together, while permitting expansion of the material within a section. Each page number identifies: the Part to which it belongs, the standard or regulation with which it is concerned, and the page number. For example, page one of Standard No. 108 is listed as PART 571; S 108-1. Preamble material (which is not amended) has the same numbering system, except that the abbreviation PRE precedes the page number (e.g. PART 571; S 108-PRE 1).

New standards, amendments, interpretations and other changes are issued once a month as supplements to this document. These are loose leaf, pre-punched and distributed automatically to subscribers to this publication. A sample layout of a changed page with explanatory annotations appears on page iii.



Material enclosed in brackets represents amendment to standard

## MOTOR VEHICLE SAFETY STANDARD NO. 203

### Impact Protection for the Driver from the Steering Control System—Passenger Cars

**S1. Purpose and scope.** This standard specifies requirements for steering control systems that will minimize chest, neck, and facial injuries to the driver as a result of impact.

**S2. Application.** [This standard applies to passenger cars. However it does not apply to vehicles that conform to the frontal barrier crash requirements (S5.1) of Standard No. 208 (§ 571.208) by means other than seat belt assemblies. (40 F.R. 17992—April 24, 1975. Effective: 5/27/75)]

**S3. Definitions.** "Steering control system" means the basic steering mechanism and its associated trim hardware, including any portion of a steering column assembly that provides energy absorption upon impact.

#### S4. Requirements.

**S4.1** Except as provided in S4.2, when the steering control system is impacted by a body block in accordance with Society of Automotive Engineers Recommended Practice J944, "Steering Wheel Assembly Laboratory Test Procedure," December 1965 or an approved equivalent,

at a relative velocity of 15 miles per hour, the impact force developed on the chest of the body block transmitted to the steering control system shall not exceed 2,500 pounds.

**S4.2** A Type 2 seat belt assembly that conforms to Motor Vehicle Safety Standard No. 209 shall be installed for the driver of any vehicle with forward control configuration that does not meet the requirements of S4.1.

**S4.3** The steering control system shall be so constructed that no components or attachments, including horn actuating mechanisms and trim hardware, can catch the driver's clothing or jewelry during normal driving maneuvers.

#### Interpretation

The term "Jewelry" in paragraph S4.3 refers to watches, rings, and bracelets without loosely attached or dangling members.

32 F.R. 2414  
February 3, 1967

Issue of *Federal Register*  
in which amendment was  
issued and effective date  
of amendment

Issue of *Federal Register*  
in which Standard was  
originally issued

Part of *Code of Federal Regulations*  
in which Standard appears

Standard Number

Page Number

Date of latest revision

(Rev. 1/13/82)

PART 571; S 203-1





## **Section One**

- Part 510**—Information Gathering Powers
- Part 511**—Adjudicative Procedures
- Part 512**—Confidential Business Information
- Part 520**—Procedures for Considering Environmental Impacts
- Part 523**—Automobile Fuel Economy—Vehicle Classification
- Part 525**—Exemptions From Average Fuel Economy Standards
- Part 527**—Passenger Automobile Average Fuel Economy Standards
- Part 529**—Manufacturers of Multistage Automobiles
- Part 531**—Fuel Economy Standards for Passenger Cars
- Part 533**—Average Fuel Economy Standards for Light Trucks MY 1983–85
- Part 535**—Three-year Carryforward and Carryback of Fuel Economy Credits  
for Manufacturers of Light Trucks
- Part 537**—Automotive Fuel Economy Reports
- Part 551**—Procedural Rules
- Part 552**—Petitions for Rulemaking, Defect, and Non-Compliance Orders
- Part 553**—Rulemaking Procedures
- Part 554**—Compliance Enforcement and Defect Investigation
- Part 555**—Temporary Exemption From Motor Vehicle Safety Standards
- Part 556**—Exemption for Inconsequential Defect or Non-Compliance
- Part 557**—Petitions for Hearings on Notification and Remedy of Defects
- Part 566**—Manufacturer Identification
- Part 567**—Certification
- Part 568**—Vehicles Manufactured in Two or More Stages
- Part 569**—Regrooved Tires
- Part 570**—Vehicle-in-Use Inspection Standard



## PREAMBLE TO PART 510—INFORMATION GATHERING POWERS (Docket No. 78-01; Notice 3)

**ACTION:** Final rule.

**SUMMARY:** This notice establishes a final rule governing the issuance and use of compulsory process by the National Highway Traffic Safety Administration (NHTSA) in carrying out its duties under the National Traffic and Motor Vehicle Safety Act of 1966, as amended, (the Safety Act), and the Motor Vehicle Information and Cost Savings Act, as amended, (the Cost Savings Act). This final rule was preceded by an interim final rule, which set forth the procedures the agency would use in exercising its information gathering powers, and solicited comments on those procedures. This rule informs the public of those procedures, and of the rights which the public has with respect to those procedures.

**EFFECTIVE DATE:** This rule will become effective (45 days after publication in the Federal Register).

### FOR FURTHER INFORMATION CONTACT:

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### SUPPLEMENTARY INFORMATION:

*A. Background.* At 42 FR 64628, December 27, 1977, NHTSA published an interim final rule establishing 49 CFR Part 510, *Information gathering powers*. That regulation set forth the procedures to be followed by NHTSA in exercising its information gathering powers. It was issued as an interim final rule without prior notice or opportunity for comment. This is permitted by 5 U.S.C. 553 (b) (3) (A), which allows rules which are strictly procedural to be issued without the normally required notice and opportunity for comment. However, because of this agency's

policy of encouraging public participation in all agency activities, Part 510 was issued as an interim rule, and comments from interested members of the public were solicited. On February 2, 1978, the comment period was extended for an additional 20 days in response to a petition requesting such an extension; see 43 FR 5516, February 9, 1978. The agency received many comments on Part 510 from members of the automotive industry, automotive associations both large and small, associations of automobile users and consumers, and at least one private citizen who did not indicate any affiliation. All comments were considered and the most significant ones are addressed below.

In response to the comments received, several changes have been made to the interim rule. However, most of these changes are for the purpose of clarification or to make explicit what had been implicit in the interim rule. The most significant changes are outlined below.

*B. Most significant changes.* The following are the most significant differences between the interim rule and this final rule:

1. The final rule reorganizes the category of "investigational hearing" contained in the interim rule into two smaller categories. The first reorganized category is the "information gathering hearing", in which the agency can compel a witness to appear and answer questions under oath. The agency's rulemaking meetings are the most common example of this type of proceeding. Generally, these hearings will be public, and questioning of the witness will be limited to the presiding officer and any other members of a panel. The other reorganized category, which is derived from the interim rule's investigational hearing, is the "administrative deposition". This is used in investigations and is modeled after a deposition under the Federal Rules of Civil Procedure.

2. The final rule requires that any process issued under it recite the statutory authority under which the process is issued.

3. The final rule requires that any process issued under it contain a brief description of the investigation or inquiry in connection with which it is being issued.

4. The final rule adds a form of compulsory process, the written request for the production of documents and things. This was implicit in the concept of the general or special order established in the interim rule, but has been made explicit in this final rule to avoid any confusion as to the availability and proper uses of this form of process.

5. The final rule expands the right to counsel by deleting the authority for the agency to exclude a person as counsel if such person were counsel for a number of other witnesses in the same investigation or if such person had personally been subpoenaed to testify.

6. The interim rule had not specified any time limitations on the duty to supplement responses to compulsory process. This final rule includes the following limitations: with respect to process issued in connection with a rulemaking action, the duty to supplement terminates when a final rule is issued or the action is otherwise ended. With respect to process issued in connection with an enforcement investigation, the duty to supplement responses terminates when the defect investigation is closed. Finally, with respect to process not issued in connection with a specific rulemaking action or enforcement investigation, the duty to supplement terminates 18 months after the date of the original response to the process.

#### C. Discussion of comments.

1. *Comments on the procedure followed for issuing this rule.* One commenter suggested that the interim rule may be void because it was issued without a prior notice of proposed rulemaking and opportunity for public comment. Moreover, this defect might not be cured by the publication of a final rule after consideration of comments received, according to this commenter, in which case the final rule would also be void.

The commenter asserted that any rule which substantially affects the rights of persons subject to the authority of an agency must be promulgated with notice and opportunity for comment, no matter whether the rule is labeled substantive or procedural. However, the authority cited by the commenter does not support that assertion.

Instead, the cases suggest that when it is difficult to determine whether a rule is substantive or procedural, the court will consider the impact on the regulated parties. If that impact is significant, it is likely that the rule is substantive. Thus, in *Piekus v. United States Board of Parole*, 507 F.2d 1107 (D.C. Cir. 1974), the board of parole argued that its regulation was procedural, but the regulation also established some criteria for parole eligibility. In *Pharmaceutical Manufacturers Association v. Finch*, 307 F. Supp. 858 (D. Delaware 1970), the FDA established procedural regulations which also set up the requirements with which drug manufacturers would have to comply to establish that a new drug was safe and effective. And in *National Motor Freight Traffic Association v. United States*, 268 F. Supp. 90 (D.D.C. 1967), *aff'd*, 393 U.S. 18 (1968), the Interstate Commerce Commission's procedural regulations also established a remedy for the recovery of overcharges. In none of these cases did the court find the regulation to be purely procedural.

Numerous cases have upheld the validity of procedural rules issued without notice and opportunity for comments, even when the rules had a major impact on the parties. See *Eastern Kentucky Welfare Rights Organization v. Simon*, 506 F.2d 1278 (D.C. Cir. 1974) *vacated on other grounds*, 436 U.S. 26 (1976); *Shell Oil Co. v. Federal Power Commission*, 491 F.2d 82 (5th Cir. 1974); *Buckeye Cablevision, Inc. v. United States*, 438 F.2d 948 (6th Cir. 1971). The agency believes that Part 510 is purely procedural, since it does not even arguably establish any criteria for obtaining favorable consideration by the agency, nor does it establish any remedies for violations of substantive agency rules. Indeed, it appears to NHTSA that the regulation does not substantially affect the rights of any parties, since Part 510 only implements information gathering powers and remedies for violations of those powers granted to NHTSA in various statutes, without adding to or deleting from those powers and remedies in any way.

Furthermore, even if NHTSA accepts *arguendo* the commenter's claim that the interim rule should have been preceded by notice and opportunity for comment, that failure would be cured by the agency's solicitation of comments on the interim rule and the issuance of this final rule in response to the comments received. The commenter's position that no "cure" is possible is based on four

cited cases. Three of those cases involved a situation where the agency involved never issued a notice indicating that there had been any consideration of the comments received and no modifications of the rule were ever made. Hence, the courts in *Community Nutrition Institute v. Butz*, 420 F. Supp. 751 (D.D.C. 1976), *NLRB v. Wyman-Gordon Co.*, 394 U.S. 759 (1969), and *National Motor Freight Traffic Association v. United States*, *supra*, were not presented with the issue of whether a defectively issued rule can be cured by soliciting and considering comments.

The other case cited by the commenter for the position that no cure is possible was *City of New York v. Diamond*, 379 F. Supp. 503 (S.D.N.Y. 1974). In that case, the Department of Labor published a rule as final without any prior notice or opportunity for comment. There was a statement in the rule that any comments received in response thereto would be acted upon as though the rule were a notice of proposed rulemaking. No final rule showing some consideration of comments was ever published.

The court held that this rule was void for failure to comply with the requirements of the Administrative Procedure Act. The rationale for the decision is explained at 379 F. Supp. 517, where the court said, "Permitting the submission of views after the effective date is no substitute for the right of interested persons to make their views known in time to influence the rulemaking process in a meaningful way." The court expressed doubts that an after-the-fact opportunity to comment would be meaningful since people would be unlikely to submit comments and the agency would be unlikely to consider changes after a *fait accompli*.

This reasoning is inapposite in the instant situation. There has been no claim by this or any other commenter that they were not allowed to make their views known in time to influence the rulemaking process. The doubts that comments would be submitted can be allayed with regard to this interim rule. A total of 26 written comments were submitted in response to the invitation for comments in the interim rule, and many of these were long and detailed. The comments have been considered at length. Changes outlined above have been made to the interim rule in response to the comments received.

Further, the remedy for a defectively issued rule is that the invalidly issued rule is void and the agency must follow the notice and comment procedures before promulgating any new rule on the subject. In this case, voiding the permanent rule and requiring the agency to solicit comments is unnecessary. Detailed comments have already been submitted by representatives of many different segments of the interested public. Reissuance of a proposal identical to the interim rule would serve no useful purpose.

2. *General comments.* Several commenters expressed concern that the issuance of Part 510 signalled an end to a relatively cooperative relationship concerning the agency's information gathering needs, and a beginning of a new, more adversarial relationship. NHTSA believes this concern is unfounded. The agency has always had the power to compel the production of information, and has in fact made numerous mandatory requests for information before the issuance of Part 510. Part 510 is simply an effort by the agency to state its authority with regard to information gathering, and set forth the procedures it will follow in exercising that authority, as well as setting forth the rights parties have when confronted with compulsory process by this agency.

The existence of this rule will not change the agency's general reliance on the voluntary submission of information. For its part, the agency will continue where feasible to rely on persons and entities to voluntarily provide the agency with information if the party will do so. NHTSA believes that most parties will continue to do so, since it is in the interest of those persons, as well as that of the agency and the public, for NHTSA to be well informed in its activities.

There were also repeated concerns that the information gathering powers in Part 510 are potentially oppressive, and could violate the right to privacy. The information gathering authority of this agency has been used and will continue to be used in a responsible manner.

Persons subject to the agency's information gathering powers have protections more secure than this agency's assurances of good intent. Under the provision of Part 510, persons may informally protest the exercise of the information gathering powers and seek to informally negotiate terms of compliance that would not be oppressive. If the party chooses, there are more formal ways of

protesting at the administrative level, such as filing motions to quash or modify the process before the Deputy Administrator. Finally, a person who has been served with compulsory process and exhausted the available administrative remedies may raise any available defense in an action brought by NHTSA to enforce the process in the appropriate United States District Court.

A number of commenters, particularly those representing small businesses, stated that additional Federal paperwork requirements would be unbearable. This agency is aware of the problems caused business, especially smaller businesses, by requirements which cause the business to prepare more paperwork. As explained above, issuance of this rule will not lead to a significant change in the information gathering practices of this agency.

One commenter inquired whether the agency would seek out differing opinions in the information gathering process. NHTSA has always tried to obtain a variety of views in its information gathering activities, particularly in the area of rulemaking, where the policy issues involved are best considered in the light of contrasting opinion. The agency has in the past sought information and views from various persons and entities. Typically, voluntary requests and compulsory process are sent to manufacturers, since they are most likely to possess the type of information needed by the agency. To inform the public of these information gathering efforts, copies of the process and requests are placed in the dockets. This information gathering has been supplemented at the notice and comment stage of rulemaking by such means as inviting public participation to ensure that a wide range of views is represented.

Several commenters expressed the view that the information gathering powers discussed in Part 510 were unnecessary, duplicative of the authority of the National Transportation Safety Board, and not contemplated by Congress. It is clear that Congress has given the agency broad information gathering powers. Before the 1974 amendments to the Safety Act, NHTSA's investigative and information gathering authority under that Act was relatively circumscribed. In 1974, the Congress amended the Safety Act to give the agency broad authority similar to the authority it already possessed under Title I of the Cost Savings

Act. With respect to the 1974 amendments, the House Committee stated that the amendments authorize:

the Secretary to conduct informational hearings and to obtain evidence from any person who has information relevant to the implementation of the Act. *Despite the vital importance of information gathering to successful implementation of the Act, the Secretary does not possess general authority for this purpose.* This lack is anomalous in view of the extensive information gathering authority in the property damage reduction provisions of the Motor Vehicle Information and Cost Savings Act. *This paragraph would give the Secretary similar broad authority in the more important pursuit of preventing highway deaths and injuries.* (emphasis added) H. Rep. 93-1191, 93rd Cong., 2d Sess. at 36-37.

In connection with the agency's duties under Title V of the Cost Savings Act, dealing with automotive fuel economy, Congress granted similar broad information gathering authority in section 505. To assist NHTSA in its duties to prevent odometer fraud, Congress also granted the agency broad information gathering powers in Title IV of the Cost Savings Act at section 414.

NHTSA's information gathering powers complement, but do not duplicate those of the National Transportation Safety Board (NTSB). The functions and information needs of the two agencies, even in the safety area, differ significantly. The function of the NTSB is to investigate significant transportation accidents, whether on the highways, rails, sea, or air, to determine the cause of those accidents. NTSB then publicly reports the results of these investigations. It also issues general recommendations for reducing the risks of accidents and publishes reports on the general transportation safety consciousness of other government agencies.

The functions of NHTSA include issuing specific rules to prevent highway deaths and injuries, reduce property damage in the event of an accident, increase the average fuel economy of automobiles, and prevent odometer fraud. Any validly issued rule which is violated subjects the violator to civil penalties. These differing functions illustrate why the two agencies have differing information needs. Further NTSB does not obtain

any information which could be used to assist NHTSA in its fuel economy, damageability, or odometer fraud activities. With respect to NHTSA's safety activities, this agency is concerned with more than just the cause of an accident. NHTSA must also obtain information which could support the establishment of safety standards in the area, establish that there has been some noncompliance with such standards, or show the existence of a safety-related defect.

### 3. *Specific comments.*

a. *Recitation of authority.* A commenter suggested that Part 510 require that any process issued thereunder indicate the statute that authorizes the particular process. The agency agrees that this is a reasonable requirement, and §510.3(b) (2) of the final rule includes this requirement. The agency would like to note that the practice under the interim rule has been to indicate the statutory basis for the process issued thereunder, although the interim rule did not require this.

b. *Statement of purpose.* There were also a number of comments suggesting that Part 510 should be amended to require that any compulsory process contain a brief description of the purpose and scope of the investigation in connection with which the process is issued, so that a respondent or a reviewing court would have a basis for determining whether the process is reasonably relevant to that investigation. This agency agrees to change the interim rule to add a requirement in § 510.3 (b) (4) of the final rule that compulsory process contain a brief description of the purpose and scope of the agency's investigation. Again, the agency notes that process issued under the interim rule has routinely carried a brief description of the purpose of the agency's investigation.

It must be kept firmly in mind that the agency need not and will not go into a detailed and specific discourse about any investigation to support compulsory process. As stated by the Court of Appeals for the District of Columbia Circuit in *Federal Trade Commission v. Texaco*, 555 F.2d 864 (D.C. Cir.); *cert. den.*, 431 U.S. 974 (1977):

... an investigating agency is under no obligation to propound a narrowly focused theory of a possible future case. Accordingly, the relevance of the agency's subpoena requests may be measured only against the general purposes of its investigation. 555 F. 2d at 874 (emphasis in original)

More recently, the District Court for the District of Columbia decided a case dealing specifically with the information gathering powers of NHTSA in *United States v. Firestone Tire and Rubber Co.*, 455 F. Supp. 1072 (D.D.C 1978). The court there addressed this issue saying:

The agency need not narrow its focus from the beginning, and it is not for this court to determine whether the information sought is relevant to whatever eventual action the agency might take. This court may look only to the *general purpose* of the investigation and determine if the information sought, however broad, is relevant to that purpose. 455 F. Supp. at 1083 (emphasis in original)

One commenter suggested that Part 510 be amended to require that compulsory process inform the respondent of the identity of the person or entity under investigation. In most enforcement investigations the agency now identifies the persons subject to the investigation in its information requests and compulsory process. The agency must be free, however, to gather information relevant to the general purpose of investigations which are not yet focused on potential violations and violators. There may also be investigations in which nondisclosure of the identity of those under investigation will be necessary to prevent harm to the outcome of the investigations or harm to informants. The Supreme Court has said that it is a proper purpose for an administrative subpoena "to discover and procure evidence, not to prove a pending charge or complaint, but upon which to make one if, in the Administrator's judgment, the facts thus discovered should justify doing so." *Oklahoma Press Publishing Co. v. Walling*, 327 U.S. 186, at 201 (1946). In other words, agency investigations and compulsory process issued in connection with those investigations need not be focused on a limited number of persons or entities, but can be intended simply to determine if there are violations of any standards; *United States v. Morton Salt Co.*, 338 U.S. 632 (1950). Adoption of the requirement urged by this commenter in all cases would unduly hamper NHTSA's ability to conduct these authorized and proper types of investigations and the comment is, therefore, rejected.

c. *Production of documents.* Interim Part 510 listed a subpoena *duces tecum* as the only form of compulsory process through which this agency

could compel the production of documents. Although it was not specifically identified as such, the authority to issue general or special orders includes the authority to compel the production of documents.

The agency's authority to issue a type of compulsory process that required the production of documents outside the context of a hearing, in which a subpoena would be issued, was upheld in *United States v. Firestone Tire and Rubber Co.*, *supra*. In that case, NHTSA issued a special order to Firestone commanding the company to produce and provide information about a group of documents. Firestone specifically challenged the agency's authority to compel the production of documents outside the context of a hearing. NHTSA argued that section 112 (c) (2) of the Safety Act (15 U.S.C. 1401 (c) (2)) gave the agency this authority. The court analyzed the legislative history of this section and found that Congress had intended to give the agency broad investigatory powers. In conclusion, the court said:

Following Firestone's argument would emasculate these newly-granted investigatory powers. As such, the court must read the requirements of this Act within the context of Congressional intent. The Secretary's investigative power is broad enough to compel the production of documents and the analysis thereof. 455 F. Supp. at 1082.

It is clear from this analysis that NHTSA has the power to compel the production of documents by the use of general or special orders under the Safety Act. Sections 104 (a)(2), 204(b), 414 (c) (2), and 505 (b) (1) (B) of the Cost Savings Act (15 U.S.C. 1914 (a) (2), 1944 (b), 1990d (c) (2), and 2005 (b) (1) (B)) use language identical to that used in section 112 (c) (2) of the Safety Act. The use of identical language shows the same intent to give NHTSA broad authority and necessarily grants that broad authority.

To make it explicit in this final rule that the agency may exercise this authority, a form of compulsory process not specifically set forth in the interim rule has been added to this rule. The process is called a written request for the production of documents and things. This process may be issued alone or as a part of a general or special order. A written request for the production of documents and things is the functional equivalent of a subpoena *duces tecum*.

d. *Service of process; when and where returnable.* One commenter argued that service of compulsory

process should be effected only by personal service, rather than allowing the agency the option of mail service, as is permitted by section 510.3(c). The reason offered for this requested change is that personal service is the only permissible service for process issued by the courts of the United States in civil matters, as set forth in Rule 45 (c) of the Federal Rules of Civil Procedure. Personal service, of course, offers the greatest certainty that the person named in the process received actual notice thereof. However, a requirement of personal service would add a great deal of cost, time, and burden for the agency in connection with the issuance of compulsory process.

The commenter cited no authority which would prohibit the agency from effecting service by mail, nor is the agency aware of any such authority. In fact, many Federal agencies use mail service for their compulsory process. *See, e.g.*, 16 CFR §4.4 (a) (Federal Trade Commission); 17 CFR § 201.4(b) (3) (Securities and Exchange Commission). The judgment made by these agencies is that the possibility of a party not receiving notice by mail service is so slight that the additional expenditure of taxpayers' money required to effect personal service would not be justified. This agency concurs with that determination and will, therefore, permit service by registered or certified mail. If the respondent does not receive the process when it is served by mail, NHTSA will give that fact due consideration when determining the appropriate action to be taken in response to the respondent's failure to comply.

The same commenter raised the question of issuing compulsory process to foreign citizens or nationals of foreign countries residing abroad who are not served with process in the United States, or who have not appointed an agent for the service of process in the United States. The commenter argued that subpoenas to such persons would have to be considered requests, rather than commands, because such persons would be beyond the jurisdiction of the United States. The agency's compulsory process is bounded by the jurisdictional limits of the United States courts where the process is enforceable. The agency has no doubt, however, that a corporation or person amenable to service can be required to produce records located outside the territorial limits of the United States.



Several commenters suggested that when service is effected by mail, the date of service should be the date the respondent receives the process, rather than the date on which the service is mailed, with three additional days allowed to perform the required act, as is required by § 510.3(d). One commenter urged that the agency could easily determine the date of receipt by using return receipt mailing methods. The provision in the interim rule was adopted directly from Rule 6 (e) of the Federal Rules of Civil Procedure. This provision has not led to any difficulties or unfairness in the Federal courts such as some commenters suggested would result from this provision in Part 510.

Return receipt mail would add costs for the agency and could add delay and cause other difficulties in delivering process. These burdens would not be outweighed by being able to ensure absolutely that the respondents actually had available to them the period to respond to the process which was stated in the process. The agency will always entertain motions to extend the return date of its process, if the respondent can show that the period available to it was inadequate. Since these motions can be filed for all process issued by the agency, the benefit of using return receipt mailing would be insubstantial.

One commenter suggested that Part 510 should allow service of compulsory process to a business to be made upon an agent designated to receive service, as an alternative to the agent-in-charge. NHTSA agrees with this suggestion, and the rule has been modified to reflect this new provision.

Many commenters addressed the issue of the amount of time which should be permitted to respond to compulsory process. Generally, the commenters indicated that compulsory process should be returnable in a reasonable amount of time. Although this was not specifically required by the interim rule, NHTSA intends to continue its policy of requiring that process be returnable in a reasonable amount of time. Further, NHTSA believes that the requirement for reasonable amount of time to respond to compulsory process is so fundamental that it need not be explicitly stated in the final rule.

Some commenters suggested that a certain period of time, such as 30 days, be presumed by the agency to be a minimum reasonable time. Other commenters noted special factors which should

lengthen the amount of time that could be considered reasonable. Examples of these special factors were language differences and the size of the companies to which the process was directed.

NHTSA concurs with the implicit statement in these latter comments that the determination of what is a reasonable period of time to respond must necessarily be an *ad hoc* one, which will of necessity consider the facts involved in each individual case. The agency notes that, in addition to the burden imposed on the respondents, the determination of what is a reasonable time period in which to respond must also consider the agency's need for the information so that it can perform its functions in a timely manner. However, the fact that a determination of what is a reasonable period of time must, almost by definition, be made on a case-by-case basis leads the agency to conclude that the establishment of even a presumptively reasonable amount of time in which to respond would unnecessarily limit the ability to consider the particular facts of each case. In the past, NHTSA has been willing to grant extensions of time for responses to compulsory process where it appeared that such extensions were necessary and consistent with the public interest. No departure from that policy is contemplated.

One commenter inquired where NHTSA's compulsory process would be returnable. Although most compulsory process will be returnable at the offices of NHTSA, situations may arise where the process would be returned at some other place. This question of where process must be returned should also be considered on a case-by-case basis.

e. *Investigational hearings.* The interim rule set forth one section which was intended to cover all agency hearings and which referred to all hearings as investigational hearings. These hearings were structured to be a mechanism with which to gather facts, opinions or other data relevant to an agency investigation, inquiry or rulemaking and were not adjudicative or quasi-adjudicative procedures. The presiding officer at these hearings would have had the authority to rule on objections, "unless an immediate ruling would be unwarranted, and except where a refusal to answer was based upon the privilege against self-incrimination." This limitation was necessary because the presiding officer would not be a judicial officer, and so would not rule on any legal points.

The problem which became apparent with this formulation was that the differences between hearings in connection with rulemaking and hearings in connection with enforcement proceedings make it impossible to describe both hearings in one section. Although the section in the interim rule dealing with investigational hearings did set forth all fundamental points of the two types of hearings which the agency will hold, it was not an entirely accurate description of either hearing.

In this final rule, § 510.5 sets forth the procedures for hearings in connection with rulemaking, which are called "information gathering hearings." Section 510.6 sets forth the procedures for hearings held in connection with enforcement investigations, and these are now called "administrative depositions." By separating these types of hearings, this final rule provides a more accurate description of each.

The information gathering hearings will generally be open to the public. Information gathering hearings include hearings in connection with pending rulemaking actions, hearings on an initial determination by the agency of a safety-related defect or noncompliance with an applicable Federal motor vehicle safety standard, held pursuant to the authority of section 152 of the Safety Act (15 U.S.C. 1412), and hearings on whether a manufacturer has reasonably met its obligation to notify and remedy a defect or failure to comply, which hearings are held pursuant to the authority of section 156 of the Safety Act (15 U.S.C. 1416). In addition to the presiding officer, one or more other persons may be designated as members of the panel. The members of the panel may question any witness. If any person not a member of the panel wishes to pose a question to a witness, that person may write down the question and submit it to the panel. Any member of the panel may then pose the question if that member feels it appropriate to do so. The presiding officer at an information gathering hearing runs the hearing, and ensures that it proceeds in an orderly fashion.

The administrative deposition, which is held in connection with enforcement investigations, will generally be closed to the public. This proceeding has been adapted from the procedures for deposition procedures set forth in the Federal

Rules of Civil Procedure. An officer authorized to administer oaths will put the deponent under oath and record the person's testimony. NHTSA will examine the witness first and then the witness's attorney may examine the witness.

A number of commenters argued that the right to counsel provided in interim Part 510 was too restrictive. One commenter stated that the provisions of the interim rule, which allowed any witness at an investigational hearing to be accompanied by counsel, to confer with counsel, and to allow counsel to raise and explain any objections to any question asked of the witness was a limitation on the right to counsel guaranteed in the Administrative Procedure Act at 5 U.S.C. 555, where a person compelled to appear in person before an agency is entitled to be "accompanied, represented and advised" by counsel. This commenter stated that the words "accompanied", "represented," and "advised" have different shades of meaning signifying varying rights under the law. NHTSA agrees with this latter statement. It is not clear to this agency, however, what the words "accompanied, represented and advised" mean in addition to the rights to have counsel present, to confer with that counsel, and to have that counsel raise and explain objections, which were granted in the interim rule. Notwithstanding this point, NHTSA has no objections to modifying the language of Part 510 in this final rule to track the language of the Administrative Procedure Act.

Another commenter suggested that the rights of counsel to state and argue objections should be expanded. The interim rule provided that counsel could object to any question and state the basis for that objection on the record. This commenter believes that the right to counsel consists of, at a minimum, the right to make objections on the record and argue briefly the basis for the objections. NHTSA does not believe that it would be appropriate to modify the final rule to permit counsel to argue objections. In the information gathering hearings, the presiding officer will not be ruling on legal points, so no useful purpose would be served by airing legal points at length during the course of the hearing. With respect to the administrative depositions, the presiding officer as set forth in the interim rule has been replaced in this final rule by an officer authorized to administer oaths, and this officer will not rule on any objections. Accordingly, once the objection has

been stated and the basis therefor explained, no purpose, other than delaying the deposition, would be served by arguing the objection.

Several commenters urged that the final rule should allow cross-examination of witnesses at investigational hearings. Since the investigational hearings in the interim rule have been divided into information gathering hearings and administrative depositions in this final rule, the comment has been considered with respect to both forms of hearings. At an information gathering hearing, there will be more than one witness, and these witnesses will be expressing differing views and opinions. If each of these witnesses could be cross-examined the hearing would be lengthened considerably. Especially since interested persons may submit questions to be asked by the presiding panel and are typically permitted a chance to supplement their comments after these hearings, the agency concludes that the rule should not be amended to permit cross-examination of witnesses.

Administrative depositions will focus on one witness, and the testimony of that witness will be considered by NHTSA in determining whether an enforcement action is necessary. If the agency decides to pursue an enforcement action it will be important that the testimony of the witness be as probative and accurate as possible. In this context, examination of the witnesses will generally be more administratively workable, because there will be only a single witness. The final rule has been accordingly modified to allow the witness's attorney or representative to examine the witness after NHTSA finishes its examination of the witness. Following this examination, NHTSA may reexamine the witness, and the witness's attorney may then reexamine the witness, and so forth, as appropriate.

Many objections were raised to the provision in the interim rule which excluded persons who were subpoenaed to testify at an investigational hearing from acting as counsel or representative for any other witnesses at that investigational hearing. One commenter argues that this provision could easily be abused by NHTSA to improperly exclude a counsel or representative. After a consideration of these comments and a reexamination of the exclusion, the agency has determined that the final rule should be modified.

The reason for including this authority was to prevent a situation where a counsel or

representative advising a number of persons in the same proceeding could interfere with the investigation by, either consciously or subconsciously, tailoring testimony to conform with testimony already given. Several courts have stated that this general purpose is legitimate, and could support a decision to exclude a counsel or representative in these circumstances. *SEC v. Csapo*, 553 F.2d 7 (D.C. Cir. 1976); *SEC v. Higashi*, 359 F.2d 550 (9th Cir 1966). However, both these cases indicate that authority to exclude counsel must be kept within permissible limits. The automatic exclusion of counsel has been deleted for both the information gathering hearings and the administrative depositions. For information gathering hearings § 510.5 (e) of this final rule retains authority for the Administrator to take appropriate action if a counsel or representative refuses to comply with the presiding officer's directions or to adhere to reasonable standards of orderly and ethical conduct. Appropriate actions could include the exclusion of that counsel or representative from the hearing.

For an administrative deposition, the rule does not specifically provide for any exclusion, regardless of the behavior or conduct of a counsel or representative. In the event that it becomes necessary to prevent annoyance, embarrassment, oppression, or undue expense or delay to the witness or the agency, NHTSA will file an action in a United States District Court to seek an order to enforce the subpoena and to end the annoyance, embarrassment, oppression, or undue expense or delay, pursuant to the provision of § 510.6 (c) (5). This motion would be analogous to a motion for a protective order, which could be filed under Rule 26 (c) of the Federal Rules of Civil Procedure.

As an adjunct to this modification, the agency is changing the requirements of § 510.6(f) to provide that NHTSA may, in a nonpublic investigation and for good cause shown, decline to provide a copy of the transcript of his or her testimony to the witness. In those cases, the witness will be limited to an inspection of the transcript of the deposition. Such a limitation is explicitly authorized by the Administrative Procedure Act; 5 U.S.C. 555 (e). The purpose of this change is to prevent witnesses from tailoring their testimony to conform to testimony given by previous witnesses.

One commenter suggested that the provision in Part 510 regarding the time in which a witness is allowed to sign the transcript of his or her testimony be made more flexible. The 30-day

period included in the interim rule was drawn directly from Rule 30(e) of the Federal Rules of Civil Procedure, where experience has not shown it to be inadequate. Nonetheless, the language in § 510.6(d) has been modified to allow the agency to designate some period other than 30 days as the period by which the testimony must be signed. The agency will allow a longer or shorter period as appropriate in particular circumstances.

A section has been added to the final rule which would also permit the agency to correct errors in the transcript of the deposition. Upon receiving a copy of the testimony given at the deposition, NHTSA would note any errors it believed had occurred in the transcription of the deposition, and forward notice of the alleged errors to the witness at the deposition, along with the transcript of the deposition. This notice would ask the witness to stipulate that the errors had occurred and agree to the corrections. If the witness would not make this stipulation, NHTSA would ask the presiding officer to have the record of the testimony reflect the dispute and show the NHTSA's version of the testimony as well as the version signed by the witness. The parties could then attempt to get an affidavit from the stenographer as to which version was most accurate, or take other steps to try to verify their version as the most accurate.

f. *Subsequent use of testimony.* Several commenters objected to the interim rule insofar as it provided that testimony obtained pursuant to NHTSA's information gathering authority may be "used in any investigation or administrative or judicial adjudicative proceeding." It was claimed that that agency could not and should not attempt to control what a Federal judge or an administrative law judge would admit into evidence in a proceeding before the judge. It was further stated that the absence of certain procedural rights in the investigational hearings, such as the right to cross-examine witnesses, would automatically preclude the use of the testimony in a subsequent adjudicative proceeding.

NHTSA obviously cannot control, nor did it seek to control, what a presiding judge will admit into the record of the proceeding over which he or she presides. The reason that this language appeared in the interim rule was to put respondents on notice that any information obtained under Part 510 could be considered and used by NHTSA in the

manner it deems most appropriate, including offering such information into the record of an administrative or judicial proceeding. Whether such information would be allowed into the record is, of course, a decision which must be made by the presiding judge, in accordance with the applicable rules of evidence.

g. *Motions to modify, limit, or quash process.* A number of comments were received addressing motions to quash compulsory process. After a review of these comments, the agency has determined that the interim rule's provisions should be retained almost in their entirety.

Many commenters argued that the agency should expand the availability of these motions, so that a recipient of a general or special order could file a motion to modify, limit, or quash that process. Some of these commenters argued that NHTSA was required to permit these motions for general and special orders, if it chose to permit them for subpoenas. This issue was before the court in *United States v. Firestone Tire and Rubber Co.*, *supra*, and the court held that the interim rule's provisions allowing motions to modify, limit, or quash subpoenas, but not allowing such motions for general or special orders, were legally acceptable, 455 F. Supp. at 1080.

As a practical matter, NHTSA issues general and special orders and written requests for the production of documents and things far more frequently than it does subpoenas. To require the Deputy Administrator to consider all of the possible objections to each of these forms of compulsory process would place an overwhelming burden on that office. Furthermore, the practice under interim Part 510 and before of not allowing formal objections to be filed to these types of compulsory process has worked very satisfactorily for both the agency and the respondents to its compulsory process. Given the acceptability of the present procedures and the fact that expansion of motions to quash to include all forms of compulsory process could readily be abused to delay compliance for frivolous and insubstantial reasons, the agency has determined that only subpoenas should be the subject of motions to modify, limit, or quash.

One commenter stated that respondents to the agency's compulsory process should be permitted to informally negotiate the terms of compliance

with that process. NHTSA believed that the opportunity for informal negotiation of the terms of compliance with process was implicit in the interim rule. However, the agency has no objection to modifying the final rule to state explicitly that informal negotiations as to the terms of compliance are permissible, so § 510.3 (f) now states that the Chief Counsel is authorized to negotiate the terms of compliance with any process issued under Part 510.

As set forth in this final rule, motions requesting some change to the terms of process will be decided by the Deputy Administrator. If the Deputy Administrator is not available, these motions will be decided by the Associate Administrator for Administration. In response to a comment, the final rule makes explicit what the agency had considered to be implicit in the interim rule; i.e., the Deputy Administrator is free to structure relief, through modifications or limitations of the subpoena, to achieve the resolution he or she believes is most appropriate. The final rule has also been modified to require that any motions to modify, limit, or quash process be filed not later than 15 days after service of the process or five days before the return date of that process, whichever is earlier, except in the rare event that the return date is less than five days after the service of the process. This requirement, similar to time limitations on these motions suggested in several comments, will eliminate last minute filings of these motions. The elimination of last minute filings will serve two important purposes. First, these motions will not be subject to abuse as a means of delaying compliance. Second, the prompt filing of these motions will facilitate more reasoned responses by the NHTSA to such motions.

It was suggested by many commenters that the filing of a motion to modify, limit, or quash should automatically toll the return date of the process. NHTSA has not adopted that suggestion, since any automatic tolling provision would be easily subject to abuse as a dilatory tactic. However, the agency will entertain requests to extend the return date of any process, and will consider such requests on the basis of the individual set of circumstances. The pendency of a good faith objection would be given due consideration.

One commenter suggested that the agency catalog the grounds upon which process can be

modified, limited, or quashed. The rule has not been changed in this way, since the agency does not wish to foreclose any legitimate grounds for protesting some process. NHTSA will state that it believes that most objections will be based upon the alleged burdensomeness of the process, some assertion of privilege, or a question of the relevance of the information. However, this is not an exhaustive list of the possible objections, and any objections will be considered on their merits.

Many commenters objected to the provision that would have the Deputy Administrator deciding motions to quash. These commenters believed that the Deputy Administrator could not impartially decide these motions, because the process would have been issued by that individual, or with the concurrence of that individual or a superior, such as the Administrator. This situation was said to establish an institutional bias in favor of the validity of the process which, according to those commenters, violates the due process requirements of the Fifth Amendment.

NHTSA believes that this comment reflects a serious misunderstanding of the purpose of this agency level mechanism for considering objections to the compulsory process. This mechanism will not be and is not intended to be an adjudication of the rights of the affected parties. The due process rights to an impartial decisionmaker do not apply outside the context of a determination of the rights of the affected parties. The sole purpose of having an agency review of any objections is to provide a respondent with a means which guarantees that senior agency officials will consider any objections raised by respondents to compulsory process issued by this agency. This ensures that any position taken on the motion or objection is the final agency position. Given this purpose, it is perfectly proper to have an official as senior as the Deputy Administrator personally consider the respondent's objections and decide the validity thereof. Any respondent desiring a hearing which comports with the due process requirements and determines the rights of the respective parties can obtain this by resisting compulsory process and raising its objections in an enforcement action in a United States District Court.

*h. Duty to supplement responses to process.* Several comments were received relating to the duty to supplement responses to compulsory

process based on after-acquired information. The language in the interim rule which imposed the duty to supplement responses was taken almost verbatim from Rule 26 (e) of the Federal Rules of Civil Procedure, which requires that a response be supplemented when after-acquired information shows that the response was incorrect when made or the response, though correct when made, is no longer correct, and the failure to amend the response is a knowing concealment. Two basic objections were raised to this requirement. First, it was asserted that the duty to supplement was not limited by any time period, and would therefore impose a perpetual duty to provide the agency with information. The commenters stated that this result would be extremely burdensome to respondents while yielding minimal benefits to the agency, since much of the amended information would concern investigations which had been ended. These commenters pointed out that the duty imposed by the Federal Rules ends when the litigation ends.

NHTSA agrees with the commenters that the duty to supplement should not be open-ended. Accordingly, the final rule has modified the requirements of the interim rule to specify a limitation on the duty to supplement. If process is issued in connection with a rulemaking action or enforcement investigation, the duty to supplement terminates with the issuance of a final rule or termination of the rulemaking or with the closing of the investigation, respectively. In the case of process not issued in connection with a specific rulemaking action or enforcement investigation, the duty to supplement expires 18 months after the date of the response.

It should be noted that this amendment does not in any way diminish the agency's authority to specifically require a respondent to update some response after the duty under this part to supplement has expired. Further, the authority of the agency to require specific supplementation of responses while the general duty to supplement is in effect is not limited by that general duty.

The second basic objection to the duty to supplement as set forth in the interim rule concerned the burden imposed on respondents to correct "trivial" or "minor" errors. One commenter urged that the duty to supplement should be limited to instances where there is a "significant" change in the information originally

given to NHTSA. The agency has not adopted this suggestion. Respondents are under a duty to give accurate responses to compulsory process. Errors which appear to be trivial or minor to a respondent exercising the utmost good faith may not be so judged by the agency in the context of all the information gathered by the agency. NHTSA believes that it must determine whether a change is trivial. This requirement does impose any significant added burden on respondents, because it should typically be easier for a respondent to write down the changed information and send it to NHTSA than to inform a responsible agency official of the change and have him or her examine the change to determine whether it can properly be deemed trivial. Since there is little additional burden imposed in requiring the change to be submitted to the agency and the information is necessary for NHTSA to properly perform its function of evaluating the significance of the change, the final rule does not limit the duty to supplement as suggested.

One frequent comment of the duty to supplement was that it would be extremely burdensome for the respondents to constantly check their responses for accuracy, even if the requirement were not open-ended. NHTSA disagrees with this assertion. The duty to supplement can be wholly satisfied by checking on a periodic basis with the sources within respondent having knowledge of the area to determine whether any new facts or information have arisen which might trigger a duty to supplement. If there are such new facts or information the respondent promptly informs the agency about them. NHTSA agrees that this creates some burden for respondents, but does not agree that the burden is excessive or substantial. Moreover, NHTSA notes that much of the factual information which is subject to change, such as reports of warranty claims, is compiled for the respondents' own purposes on a regular basis. In those cases, the duty to supplement will be readily satisfied by making the update promptly available to the agency.

i. *Confidentiality of information.* Great concern was expressed over the confidentiality of alleged trade secret and confidential business information obtained by the agency by using its information gathering powers. NHTSA has published a notice of proposed rulemaking on this general subject entitled Part 512, *Confidential business*

information; 43 FR 22412, May 25, 1978. That notice proposes a detailed scheme for the treatment of confidential business information received by NHTSA. The agency anticipates that the final rule on this subject will soon be published. When Part 512 is published, its requirements will supersede those set forth in § 510.3 (e). Until that time, however, NHTSA will follow the procedures set forth in § 510.3 (e) for handling and evaluating allegedly confidential information obtained by the use of compulsory process. That paragraph provides that any claims for confidentiality must be made in writing, that information for which confidential treatment is requested will be kept confidential until the confidentiality claim is evaluated, and that the agency will afford reasonable advance notice to the submitter of the information of the contemplated release of any information for which the submitter requested confidential treatment.

j. *Fees.* Several comments were received addressing the issue of compensation by NHTSA of persons or entities for expenses incurred in connection with the responses to the agency's compulsory process. One commenter suggested that the agency make explicit that the term "person", as used in the section which provides reimbursement for the travel expenses of "persons" subpoenaed to testify at hearings, includes officers, agents, and employees of corporations. NHTSA has amended the rule to state that the term "person" as used in this and all other sections of the rule includes agents, officers, and employees of corporations in their individual capacities.

One commenter stated that a witness compelled to testify orally before the agency should not be required to pay for a copy of his or her testimony. The agency still finds it reasonable to require a person who wishes to retain a copy of his or her testimony at either an information gathering hearing or an administrative deposition to pay for that copy in most circumstances.

Copies of transcripts will be furnished without charge or at a reduced charge if the Associate Administrator for Administration determines that a waiver or reduction of the fee is in the public interest because furnishing the information can be considered as primarily benefitting the general public.

Any witness has the right to inspect the transcript of his or her testimony at no charge, and a provision is made in connection with administrative depositions for the submission of a copy of the witness's testimony to that witness for his or her signature. Hence, NHTSA does not believe that there is any financial barrier to the opportunity of any witness to thoroughly review his or her testimony.

Several commenters stated that respondents to compulsory process should be reimbursed completely for their expenses incurred in complying with the process. The agency does not believe that complete reimbursement is appropriate. First, it must be noted that the provision for reimbursement contained in NHTSA's authorizing statutes allows the agency to pay witnesses the same mileage and fees that can be paid witnesses in the courts of the United States. See section 112 (c) (5) of the Safety Act, 15 U.S.C. 1401 (c) (5) and sections 104(a) (5), 204 (e), 414 (c) (5), and 505 (b) (3) of the Cost Savings Act, 15 U.S.C. 1914 (a) (5), 1944 (e), 1990d (c) (5), and 2005(b) (3). Part 510.11 of this rule expressly authorizes the payment of these fees.

NHTSA recognizes that the expense associated with complying with compulsory process is a major component of the burdensomeness of that process. The question, however, is whether an *undue* burden is imposed. If respondents believe the burden to be undue, they can file a motion with NHTSA to quash the process and can litigate this issue if the agency does not resolve it to their satisfaction.

k. *Remedies for failure to comply with compulsory process.* Several commenters made strenuous objection to the provision of the interim rule which allows the agency to seek civil penalties against a respondent which fails to comply with NHTSA's compulsory process. The arguments made were basically that the availability of civil penalties for failure to comply was not contemplated or authorized by the Cost Savings Act or the Safety Act, and that if the penalties were authorized, that authorization would be unconstitutional. NHTSA rejects these contentions for the reasons set forth below.

There were two primary arguments raised to support the view that the agency does not have the authority to seek the imposition of civil penalties

for a failure to comply with compulsory process. First, it was asserted that the authorizing statutes provide judicial enforcement of compulsory process in a United States District Court as an exclusive remedy for the failure to comply with compulsory process. With respect to Titles I, II, and IV of the Cost Savings Act, this assertion is plainly inaccurate. Sections 106 (a) (3), 206(1), and 416 of the Cost Savings Act (15 U.S.C. 1916(a)(3), 1946 (1), and 1990 (f) state that no person shall fail to provide the information requested by the agency. A violation of this prohibition subjects the violator to civil penalties, which shall be assessed by the agency. Sections 107 (a), 208 (a), and 412 (a) of the Cost Savings Act; 15 U.S.C. 1917 (a) 1948 (a) and 1990b (a).

The commenters specifically pointed to the fact that the Safety Act at section 112 (c) (4), 15 U.S.C. 1401 (c) (4), and Title V of the Cost Savings Act at section 505 (c) (2), 15 U.S.C. 2005 (c) (2), provide that the agency may seek judicial enforcement in the case of a failure to respond to compulsory process. However, the commenters did not point out that the respective Acts also authorize the agency to impose civil penalties for a failure to comply with any "rule, regulation, or order" issued under the information gathering authority contained in that title; section 108 (a) (1) (E) and 109 (a) of the Safety Act, 15 U.S.C. 1397 (a) (4) and 1398 (a), and section 507 (3) and 508 of the Cost Savings Act, 15 U.S.C. 2007 (3) and 2008. No commenter cited any language in the statutes themselves or the relevant legislative history which states that judicial enforcement was intended to be the exclusive remedy for a failure to comply.

NHTSA believes that the availability of civil penalties for a failure to comply with compulsory process is a necessary complement to judicial enforcement. If judicial enforcement were the sole remedy for failure to comply with the agency's compulsory process, a respondent could always fail to comply with the agency's compulsory process until such time as the agency began a judicial enforcement proceeding. Then, at any time before the court entered its order compelling compliance with agency process, the respondent could comply with the order, thereby mooted the enforcement action. Any respondent would have available to it a penalty-free mechanism for delaying compliance with NHTSA's compulsory process. There is no

indication that Congress intended or sanctioned such a mechanism. Considering "the vital importance of information gathering to the successful implementation of the Act," H.R. Rep. 93-1191, 93 Cong., 2d Sess. at 37, and the absence of any indication whatsoever that judicial enforcement was to be the sole remedy, NHTSA is not persuaded by this argument.

The second argument raised to support the view that the agency lacks authority to impose civil penalties was that subpoenas and general and special orders were not "orders" within the meaning of section 108 (a) (1) (E) of the Safety Act and section 507 (3) of the Cost Savings Act, the violation of which can give rise to civil penalties. The argument is that subpoenas are not "orders", because both statutes discuss "order" and "subpoena" in the disjunctive. Since a subpoena is not an order, the argument concludes that general and special orders are not "orders" either, because general and special orders are the functional equivalent of subpoenas.

This argument is not convincing. It is a well established and accepted rule of statutory construction that the words of a statute are to be given their common meaning, absent some indication of a contrary legislative intent. 2A Sutherland, Statutory Construction, § 47.28 and the cases cited therein (4th ed. 1973). The word "order" is defined in *Webster's Second International Dictionary* as "a rule or regulation made by competent authority; also a command; mandate; precept; direction". The *Oxford English Dictionary* defines "order" as "an authoritative direction, injunction, mandate; a command, oral or written; an instruction." It is obvious that both subpoenas and general and special orders fall within this common meaning of the word "order", and that the Acts must be construed in that manner unless there is a contrary legislative intent.

The only authority which has been cited by a commenter to show a contrary intent is the language in Section 112 (c) (4) of the Safety Act, and section 505 (b) (2) of the Cost Savings (called "the judicial enforcement sections" for the rest of this discussion) giving the district court of the United States authority to compel compliance with any subpoena or order issued by NHTSA. General and special orders are specifically referred to as "orders" in these judicial enforcement sections.



Sections 108 (a) (1) (E) and 109 of the Safety Act and 507 (3) and 508 of the Cost Savings Act (called the civil penalty sections for the rest of this discussion) give NHTSA authority to impose civil penalties for the violation of any "rule, regulation, or order". There is no reason to believe that the "order" referred to in the civil penalty sections does not include the forms of process included within the meaning of "order" in the judicial enforcement sections. Congress has shown its intent that the violation of general and special orders issued by NHTSA would subject the violator to possible civil penalties.

The reference to subpoenas and orders in the disjunctive occurs in the judicial enforcement sections, which provide that compliance with a subpoena or an order can be mandated by a court. NHTSA's authority to issue subpoenas and general and special orders comes from two different grants of authority, and so it is grammatically necessary to use the disjunctive to indicate that compliance with either can be mandated by a court. There is, however, no indication in the Acts or the legislative history that Congress intended for subpoenas and general and special orders to be enforced differently. Indeed, the judicial enforcement sections treat these forms of process identically for enforcement purposes. Accordingly, the agency concludes that the use of the disjunctive in the judicial enforcement sections is not by itself a sufficient showing of a Congressional intent that subpoenas not be included within the meaning of "order" as that term is used in the civil penalty section, and so Congress intended that the word "order" as used in the civil penalty sections have its common meaning. The common meaning embraces all compulsory process issued by NHTSA, whether general or special orders, subpoenas, or written requests for the production of documents and things.

The commenters raised two Constitutional arguments in support of the position that the civil penalties could not be imposed for failure to comply with the agency's compulsory process. The first argument was that the agency could not constitutionally impose civil penalties, since this self-enforcement would give judicial power to NHTSA, a grant Congress could not make. One commenter was concerned that NHTSA was

trying to set up a procedure where the agency could hold a respondent in contempt. NHTSA has never intended to hold a non-complying respondent in contempt of the agency, and the interim rule contained no such provision. To enforce and collect any civil penalty will require the agency to bring an action in a United States District Court, requesting the court to enforce the penalty. No question of self-enforcement arises in connection with this procedure.

A more complex issue was raised by commenters in the second Constitutional argument, which was that a party desiring to mount a good faith challenge to the validity of compulsory process issued by the agency could do so only by refusing to comply with that process. If the agency were to impose a penalty for this refusal, the argument runs, the respondent would have had a penalty imposed on it for exercising its right to have a judicial review of the validity of the process.

NHTSA agrees with the commenters' assertion that there is a due process right to contest the validity of a legislative or administrative order without having to pay substantial penalties if the suit is lost. However, this right does not mean that penalties begin to accrue only upon a final judgment in NHTSA's favor. In *St. Regis Paper Co. v. United States*, 368 U.S. 208 (1961), the FTC had ordered a company to file special reports with that agency. Section 10 of the Federal Trade Commission Act, 15 U.S.C. 50, specified a penalty of \$100 for each day a special report was overdue. The company challenged this provision of the Act, alleging that it had been denied its day in court to challenge the validity of the underlying order to file special reports. The company alleged that, in effect, the order was not judicially reviewable except if the company paid the civil penalty, and that this scheme violated the due process requirements.

The Supreme Court found this penalty scheme to be consistent with due process, because the petitioner had an opportunity for judicial review without having to pay the penalty. Specifically, the Court found that the company could have filed an action for declaratory judgment and a concurrent motion to stay the effective date of the FTC order pending a ruling by the court on the validity of the order. This opportunity for review is sufficient to satisfy the requirements of due process. 368 U.S. at 225-227.

This reasoning has been applied to the civil penalty provisions for failure to comply with a NHTSA order requiring a manufacturer to furnish notification of a defect to owners, purchasers, and dealers, and to remedy the defect without charge, as specified in section 152 of the Safety Act (15 U.S.C. 1412). In *Ford Motor Co. v. Coleman*, 402 F. Supp. 475 (D.D.C. 1975) *aff'd*, 425 U.S. 927 (1976); it was asserted that this statutory provision violated the due process rights of the manufacturer by forcing the manufacturer to either comply with an erroneous order or risk a substantial civil penalty if it lost its challenge to the order. The court stated that this statutory provision did not offend due process rights, since a manufacturer which could present a substantial, nonfrivolous challenge to the validity of NHTSA's determination could obtain a preliminary injunction against the enforcement of the order. The court would have jurisdiction to issue a temporary order restraining the imposition of the penalties pending its determination of the motion for preliminary injunction, and to issue a preliminary injunction that would stay the accrual of penalties until the completion of the *de novo* enforcement proceedings in district court on the underlying order. The civil penalties would begin accumulating against the manufacturer only if the manufacturer could not convince the court to issue a preliminary injunction, i.e., if the manufacturer could not show that it had reasonable and substantial grounds for contesting the order. According to the opinion, the due process right to a judicial determination of the validity of the order does not require that a manufacturer be permitted to press a frivolous or insubstantial objection without risk of a penalty.

Several commenters cited *Reisman v. Caplin*, 375 U.S. 440 (1964) as authority for the proposition that the civil penalty scheme as set forth in the interim rule would violate due process rights. That

case involved an order by the Commissioner of Internal Revenue to a taxpayer to furnish certain documents. The taxpayer contended that since he had to risk a large fine and imprisonment for not complying with the order, he had been effectively denied the due process right to a judicial review of the validity of the order. The Court disagreed with this contention, stating that the statute authorizing civil and criminal penalties for failure to comply with an order must be read so as not to apply while a respondent is making a good faith challenge to the validity of the order. In this agency's opinion, this reasoning is identical to that used in *St. Regis, supra*, and *Ford Motor Co. v. Coleman, supra*. The civil penalty provisions in the interim rule do not restrict the right of a respondent to process to obtain a judicial review of the validity of that process without a civil penalty, if the challenge is not insubstantial. Since this complies with the requirements of due process, no change has been made to the civil penalty section of this rule from what was set forth in the interim rule.

In consideration of the foregoing, Chapter V of Title 49, Code of Federal Regulations is amended by adding a new Part 510, *Information Gathering Powers*, to read as set forth below.

The attorney principally responsible for the development of this final rule is Stephen Kratzke.

Issued on April 28, 1980.

Joan Claybrook  
Administrator

45 F.R. 29032  
May 1, 1980

## PART 510—INFORMATION GATHERING POWERS

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### § 510.1 Scope and purpose.

This rule governs the use of the information gathering powers of the National Highway Traffic Safety Administration contained in section 112 of the National Traffic and Motor Vehicle Safety Act of 1966, as amended 15 U.S.C. 1401, and sections 104, 204, 414, and 505 of the Motor Vehicle Information and Cost Savings Act, as amended 15 U.S.C. 1914, 1944, 1990d, and 2005.

### § 510.2 Definitions.

(a) "NHTSA" means the National Highway Traffic Safety Administration.

(b) "Administrator" means the Administrator of the National Highway Traffic Safety Administration.

(c) "Chief Counsel" means the Chief Counsel of the National Highway Traffic Safety Administration.

(d) "Deputy Administrator" means the Deputy Administrator of the National Highway Traffic Safety Administration.

(e) "Person" includes agents, officers, and employees of sole proprietorships, partnerships, corporations, and other entities.

### § 510.3 Compulsory process, the service thereof, claims for confidential treatment, and terms of compliance.

(a) NHTSA may use any of the following means to conduct investigations, inspections, or inquiries

to obtain information to carry out its functions under the National Traffic and Motor Vehicle Safety Act of 1966, as amended, 15 U.S.C. 1381 *et seq.*, and the Motor Vehicle Information and Cost Savings Act, as amended, 15 U.S.C. 1901 *et seq.*:

(1) Subpoenas;

(2) Information gathering hearings;

(3) Administrative depositions;

(4) General or special orders; and

(5) Written requests for the production of documents and things.

(b) A person, sole proprietorship, partnership, corporation, or other entity served with compulsory process under this part shall be provided with the following information at the time of the service—

(1) The name of the person, sole proprietorship, partnership, corporation, or other entity to which the process is addressed;

(2) The statutory provision under which the compulsory process is issued;

(3) The date, time, and place of return;

(4) A brief statement of the subject matter of the investigation, inspection, or inquiry; and

(5) In the case of a subpoena *duces tecum* or a written request for the production of documents and things, a reasonably specific description of the documents or things to be produced.

(c) Service of the compulsory processes specified in paragraph (a) of this section is effected:

(1) By personal service upon the person, agent-in-charge, or agent designated to receive process under 15 U.S.C. 1399 (e) of the sole proprietorship, partnership, corporation or other entity being investigated, inspected, or inquired of; or

(2) By mail (registered or certified) or delivery to the last known residence or business address of such person or agent.

(d) The date of service of any compulsory process specified in paragraph (a) of this section is the date on which the process is mailed by the agency, or delivered in person, as the case may be. Whenever a period is prescribed for compliance with compulsory process, and the process is served upon the party by mail, 3 days are added to the period.

(e)(1) Any person, sole proprietorship, partnership, corporation, or other entity submitting information or producing documents or things in response to any compulsory process issued under this part may request confidential treatment for all or part of that information or for those documents or things.

(2)(A) Except as provided in paragraph (e)(2)(B) of this section, requests for confidentiality shall be in writing, and addressed to the Chief Counsel.

(B) Requests for confidentiality made during an information gathering hearing or an administrative deposition may be made orally to the presiding officer. Any oral request for confidentiality shall be supplemented by a written request, and this written request must be addressed to the Chief Counsel and received by NHTSA within five days of the date of the oral request.

(C) A written request for confidentiality under paragraph (e) of this section shall specify the information, documents, or things which are to be kept confidential, specify the grounds upon which the claim is based, provide such information as may be necessary to permit the NHTSA to determine whether the claim is valid, and specify the period of time for which confidential treatment is requested.

(f) The Chief Counsel, or his or her delegate, is authorized to negotiate and approve the terms of satisfactory compliance with any compulsory process issued under this part.

#### **§ 510.4 Subpoenas, generally.**

NHTSA may issue to any person, sole proprietorship, partnership, corporation, or other entity a subpoena requiring the production of documents or things (*subpoena duces tecum*) the testimony of witnesses (*subpoena ad testificandum*), or both, relating to any matter under investigation or the subject of an inquiry. Subpoenas are issued by the Executive Secretary. When a person, sole proprietorship, partnership, corporation, or other entity is served with a subpoena *ad testificandum* under this part, the subpoena will describe with reasonable particularity the matters on which the testimony is required. In response to a subpoena *ad testificandum*, the sole proprietorship, partnership, corporation, or other entity so named shall designate one or more officers, directors, or managing agents, or other persons who consent to

testify on its behalf, and set forth, for each person designated, the matters on which he or she will testify. The person so designated shall testify as to matters known or reasonably available to the entity.

#### **§ 510.5 Information gathering hearings.**

(a) NHTSA may issue a subpoena to compel any person, sole proprietorship, partnership, corporation, or other entity to provide information at an information gathering hearing. The subpoenas are used for the purpose of obtaining testimony from a witness under oath and obtaining relevant documents and things. The Administrator, or a NHTSA employee designated by the Administrator, presides at the hearing. Information gathering hearings are open to the public unless the presiding officer rules otherwise, and the hearings are stenographically reported.

(b) In addition to the presiding officer, one or more other persons may comprise the panel. Each member of the panel may question any witness at the hearing. No person who is not a member of the panel may ask questions of a witness. However, any person may submit to the panel, in writing, proposed questions to be asked of a witness. A member of the panel may pose these questions to the witness if that member deems the questions useful and appropriate. Proposed questions may be submitted to the panel at any time before or during the course of the hearing.

(c) The stenographic record of each witness's testimony will be available to the public, unless the testimony was not given publicly and the witness requests confidential treatment for some or all of his or her testimony. When an oral request for confidential treatment is made during the course of a witness's testimony, the presiding officer may order the hearing closed to the public at that point and continue the questioning of the witness, or may note the request for confidentiality and direct the witness not to answer the question at that time, but require the witness to answer the question in writing within some specified period, or take such other action as the presiding officer deems appropriate. If a request for confidential treatment is made, the release of the record is governed by the applicable laws or regulations relating to the handling of allegedly confidential information. To the extent that some or all of a witness's testimony is not publicly available, that witness may procure a copy of his or her testimony as recorded upon payment of lawfully prescribed costs.

(d)(1) Any person who is required by subpoena or designated by an entity that is required by subpoena to provide information at an information gathering hearing conducted under this section may be accompanied, represented, and advised by counsel. Any member of the bar of a Federal court or the courts of any State or Territory of the United States, the Commonwealth of Puerto Rico, or the District of Columbia, and any representative, official, or employee of the sole proprietorship, partnership, corporation or other entity under subpoena may act as counsel.

(2) A witness appearing in response to a subpoena may confer in confidence with his or her counsel or representative concerning any questions asked of the witness. If such witness, counsel, or representative objects to a question, her or she shall state the objection and basis therefor on the record.

(e) The presiding officer at an information gathering hearing takes all necessary action to regulate the course of the hearing, to avoid delay, and to assure that reasonable standards of orderly and ethical conduct are maintained. In any case in which counsel for or a representative of a witness has refused to comply with the presiding officer's directions, or to adhere to reasonable standards of orderly and ethical conduct in the course of a hearing, the presiding officer states on the record the reasons given, if any, for the refusal and, if the presiding officer is someone other than the Administrator, immediately reports the refusal to the Administrator. The Administrator thereupon takes such action as the circumstances warrant.

(f) Where appropriate, the procedures established in this subsection may be utilized in informal hearings conducted by NHTSA pursuant to its authority under sections 152 and 156 of the Safety Act (15 U.S.C. 1412, 1416) to receive data, views and arguments concerning alleged safety-related defects. The rights accorded to witnesses in this subsection may also be accorded to witnesses who appear voluntarily at such hearings.

#### **§ 510.6 Administrative depositions.**

(a) NHTSA may issue a subpoena to compel any person, sole proprietorship, partnership, corporation or other entity to provide information as a witness at an administrative deposition. These depositions are for the purpose of obtaining information from the witness under oath and

receiving documents and things relevant to an agency investigation. These depositions shall be taken before an officer authorized to administer oaths by the laws of the United States or of the place where the deposition is taken. Unless otherwise ordered by the Administrator, administrative depositions are closed to the public.

(b) Any person who is required by subpoena or designated by an entity that is required by subpoena to produce documents or things or to give testimony as a witness at an administrative deposition conducted under this section may be accompanied, represented, and advised by counsel. Any member of the bar or a Federal court or the courts of any State or Territory of the United States, the Commonwealth of Puerto Rico, or the District of Columbia and any representative, official, or employee of the person, sole proprietorship, partnership, corporation, or other entity under subpoena may act as counsel.

(c) During an administrative deposition:

(1) The presiding officer before whom the deposition is to be taken puts the witness on oath and personally, or by someone acting under his or her direction and in his or her presence, records the testimony of the witness. The testimony is stenographically reported.

(2) After NHTSA has examined the witness at the deposition, that witness's counsel or representative may examine the witness. NHTSA may then reexamine the witness and the witnesses' counsel or representative may reexamine the witness and so forth, as appropriate.

(3) A witness appearing in response to a subpoena may confer in confidence with his or her counsel or representative concerning any questions asked of the witness. If such witness, counsel, or representative objects to a question, he or she shall state the objection and the basis therefor on the record.

(4) Objections to the qualifications of the officer taking the deposition, or to the manner of taking it, or to the evidence presented, and any other objection to the proceedings shall be noted by the officer on the record, and shall be treated as continuing. Evidence objected to shall be taken subject to the objections. Errors and irregularities occurring at a deposition in the manner of the taking of the deposition, in the form of questions or

answers, or in the oath or affirmation, and errors of any kind which might be obviated, removed, or cured if promptly presented shall be deemed to be waived unless reasonable objection is made thereto at the taking of the deposition.

(5) If the witness refuses to answer any question or answers evasively, or if the witness or his or her counsel engages in conduct likely to delay or obstruct the administrative deposition, such refusal, evasive answer or conduct shall be a failure to comply with the subpoena issued to the witness.

(6) Upon completion of the examination of a witness, the witness may clarify on the record any of his or her answers.

(d) The transcript of the testimony of a witness who testified in response to a subpoena at an administrative deposition is submitted to the witness for signature, unless the witness waives the right to sign the transcript. If a witness desires to make any changes in the form or substance contained in the transcript, the witness shall submit, together with the transcript, a separate document setting forth the changes and stating the reasons for such changes. If the deposition is not signed by the witness within 30 days of its submission to the witness, or such other period as the NHTSA may designate, the officer before whom the deposition was taken or a NHTSA employee signs the transcript and states on the record the fact of the waiver of the right to sign or the fact of the witness's unavailability or inability or refusal to sign together with the reasons, if any, given therefor.

(e) The transcript of the testimony of a witness will be inspected by NHTSA to determine if there are any errors in the transcription of the questions posed to the witness and the testimony in response to those questions. If NHTSA discovers any errors, it notes that fact and forwards the notation of errors together with the transcript to the witness, requesting the witness to stipulate that the transcript is in error and that the corrections made by NHTSA are accurate. If the witness will not make this stipulation, NHTSA may make a motion to the presiding officer to include its notation of error and its corrections in the record along with the version of the testimony signed by the witness.

(f)(1) Upon payment of lawfully prescribed costs, any person who is required by subpoena or designated by a sole proprietorship, partnership,

corporation, or other entity that is required by subpoena to appear as a witness at an administrative deposition may procure a copy of the deposition as recorded, except that in a nonpublic investigatory proceeding, the witness may, for good cause, be limited to an inspection of the record of the deposition.

(f)(2) A copy of the record of the deposition may be furnished to the witness without charge or at a reduced charge if the Associate Administrator for Administration determines that waiver of the fee is in the public interest because furnishing the copy can be considered as primarily benefitting the general public. Any witness who seeks a waiver of the copying charge may apply in writing to the Associate Administrator for Administration, and shall state the reasons justifying waiver of the fee in the application.

(g) The testimony obtained in an administrative deposition may be used or considered by the NHTSA in any of its activities, and may be used or offered into evidence in any administrative proceeding in accordance with the provisions of 5 U.S.C. 554, or in any judicial proceeding.

#### **§ 510.7 General or special orders.**

The NHTSA may require by the issuance of general or special orders any person, sole proprietorship, partnership, corporation, or other entity to file with the NHTSA, in such form as NHTSA may prescribe, periodic or special reports or answers in writing to specific questions. The responses to general or special orders will provide NHTSA with such information as it may require, including, but not limited to, information relating to the organization of that person, sole proprietorship, partnership, corporation, or other entity, its business, conduct, practices, management, and relation to any other person or entity. General or special orders which are required to be answered under oath are issued by the Chief Counsel. Any general or special order issued under this section contains the information specified in section 510.3 (b). Reports and answers filed in response to general or special orders must be made under oath, or otherwise, as NHTSA may prescribe.

#### **§ 510.8 Written requests for the production of documents and things.**

The NHTSA may, by the issuance of a written request for the production of documents and

things, require any person, sole proprietorship, partnership, corporation, or other entity to produce documents or things. A written request for the production of documents and things may be issued alone, or as a part of a general or special order issued under section 510.7. Written requests for the production of documents and things are issued by the Chief Counsel. Any written request for the production of documents and things issued under this section shall contain the information specified in section 510.3(b).

#### **§ 510.9 Motions to modify, limit, or quash process.**

(a)(1) Any person, sole proprietorship, partnership, corporation, or other entity served with a subpoena issued under section 510.4 may file with the Deputy Administrator a motion to modify, limit, or quash that subpoena. If there is no Deputy Administrator, or the Deputy Administrator is not available, such motions shall be filed with and decided by the Associate Administrator for Administration. A motion to modify, limit, or quash must be filed not later than 15 days after the service of the process or five days before the return date specified in the process, whichever is earlier, except that, if the process is served within five days of its return date, such motion may be filed at any time before the return date. Any motion must set forth the grounds and theories of why and how the party believes the process should be modified, limited, or quashed and must contain all facts and arguments which support those grounds and theories.

(2) The Deputy Administrator may, upon receiving a motion filed pursuant to paragraph (a)(1) of this section—

- (A) Deny the motion;
- (B) Modify the return date of the subpoena;
- (C) Modify, limit or quash the subpoena;
- (D) Condition granting the motion upon certain requirements; or
- (E) Take any other action he or she believes to be appropriate in the circumstances.

(3) The Office of the Deputy Administrator serves the decision on the motion on the moving party or the counsel or representative of the moving party. This service may be made by personal service, by registered or certified mail, or by reading a copy of the decision to the moving party or the counsel or representative of the moving party.

(4) A denial of any motion properly filed under this section shall be in writing, and shall contain a brief statement of the facts involved and the conclusions drawn from those facts by the Deputy Administrator.

(b) The Deputy Administrator's decision on the motion to modify, limit, or quash, filed under paragraph (a) of this section is not subject to reconsideration by NHTSA.

#### **§ 510.10 Supplementation of responses to process.**

(a) A person, sole proprietorship, partnership, corporation, or other entity which has provided NHTSA with information under this part, which information was complete and accurate at the time the information was given to NHTSA, is not required to supplement that information in the light of after acquired information, except:

(1) The person or entity to whom the process is addressed shall supplement the response with respect to any question directly addressed to the identity and location of persons having knowledge of information obtainable under this part.

(2) The person or entity to whom the process is addressed shall seasonably amend a prior response if that person or entity obtains information upon the basis of which the person or entity knows that response was incorrect when made or the person or entity knows that the response, though correct when made, is no longer true and the circumstances are such that a failure to amend the response is in substance a knowing concealment.

(b) The requirement to supplement information set forth in paragraph (a) of this section terminates when:

(1) The compulsory process stated that it was issued in connection with a contemplated rulemaking action, and a final rule is issued on that subject or a notice is issued announcing that the rulemaking action has been suspended or terminated.

(2) The compulsory process stated that it was issued in connection with an enforcement investigation, and the investigation is closed.

(3) The compulsory process does not state that it is issued in connection with a specific rulemaking action or enforcement investigation, and 18 months have passed since the date of the original response.

(c) This section in no way limits NHTSA's authority to obtain supplemental information by specific demands through the means specified in section 510.3.

**§ 510.11 Fees.**

Any person compelled to appear in person in response to a subpoena issued under this part at an information gathering hearing or an administrative deposition is paid the same attendance and mileage fees as are paid witnesses in the courts of the United States, in accordance with Title 28, United States Code, Section 1821.

**§ 510.12 Remedies for failure to comply with compulsory process.**

Any failure to comply with compulsory process authorized by law and issued under this part is a violation of this part. In the event of such failure to comply, NHTSA may take appropriate action pursuant to the authority conferred by the National Traffic and Motor Vehicle Safety Act or the Motor Vehicle Information and Cost Savings Act, as appropriate, including institution of judicial proceedings to enforce the order and to collect civil penalties.

**45 F.R. 29032  
May 1, 1980**



## PREAMBLE TO PART 511—ADJUDICATIVE PROCEDURES

(Docket No. 78-15; Notice 2)

**ACTION:** Final rule.

**SUMMARY:** This rule establishes procedures that will be followed in adjudications to enforce Title V of the Motor Vehicle Information and Cost Savings Act (dealing with automotive fuel economy). These regulations supersede interim regulations established in 1978. They are necessary to carry out the authority vested in the Secretary of Transportation to enforce the automotive fuel economy standards, gas mileage guide availability, reporting, and other requirements of that title and regulations established thereunder. These regulations are intended to enable a full, fair, and expeditious hearing in all cases of alleged violations of these requirements.

**DATE:** This regulation is effective 30 days after its publication in the *Federal Register*.

### FOR FURTHER INFORMATION CONTACT:

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**SUPPLEMENTARY INFORMATION:** On October 6, 1978, in 43 FR 47507, the National Highway Traffic Safety Administration (NHTSA) established interim procedures for conducting enforcement proceedings under Title V of the Motor Vehicle Information and Cost Savings Act, 15 U.S.C. 2001 *et seq.* Because of the anticipated need to have enforcement procedures in place as soon as possible and because of the procedural nature of the rules, the interim procedures were made effective 30 days after their publication. See 5 U.S.C. 553(b). Although the use of notice and comment rulemaking procedures was not legally required to estab-

lish these rules, the agency deemed it desirable to obtain the views of interested individuals and organizations on the procedures. Therefore, NHTSA included an invitation in the preamble to the interim procedures for the public to comment on those procedures while they were in effect to assist in developing a final rule.

Only limited comment was received on the interim procedures. The only detailed comments submitted were those of the Motor Vehicle Manufacturers' Association (MVMA). Ford Motor Company and General Motors submitted brief comments which incorporated and reiterated the comments of MVMA. No automobile dealers (who are potentially subject to the regulations), dealer organizations, public interest groups, or other individuals or organizations commented on the interim procedures. The comments received expressed general approval for the interim procedures, suggesting only relatively minor revisions.

Therefore, the agency is establishing final adjudicative procedures for fuel economy-related cases, with only minor differences from the interim procedures. A detailed discussion of the features of the selected procedures is contained in the preamble to the interim procedures and will not be repeated here. Generally, the rule established full, trial-type procedures in accordance with sections 554, 556, and 557 of Title V of the United States Code (the Administrative Procedure Act), due to the requirement in section 508(a) (2) of the Cost Savings Act for a hearing "on the record" in fuel economy enforcement cases. The specific procedures adopted were based largely on those employed by the Consumer Product Safety Commission (16 CFR Part 1025) and the Federal Rules of Civil Procedure. Departures from those models have been made in certain instances to accommodate specific requirements under the Cost Savings Act.

## Most Significant Changes to the Interim Procedures

The most significant change to the interim procedures is the deletion of a "two-tier" system (interveners and non-party participants) for participation in enforcement hearings by individuals or organizations other than the agency and the respondent, in favor of a single "participant" status. Also, some changes are made to the language used in certain areas of the regulation (particularly with respect to discovery) to make the language more consistent with the Federal Rules of Civil Procedure. The final procedures also recognize the privileged status of attorney's "work product" with respect to the discovery process.

## Comments Received on the Interim Procedures

The first point raised by MVMA and GM relates to the issue of whether the assessment of civil penalties for each day of violations of section 507(3) of the Act should run from the time of the alleged illegal conduct or from the end of the required hearing on the alleged violation. This issue was not addressed in the interim procedures. In the case of a refusal by a manufacturer to respond to a special order issued under section 505(b) of the Act, for example, the commenters would argue that civil penalties of up to the authorized \$10,000 per day should not begin accruing until after the completion of a hearing, rather than from the date on which the response to the order was due. MVMA bases its argument on its interpretation of the relevant statutory language and on constitutional due process guarantees. Specifically, MVMA argues that, under the Act, no violation has occurred until there has been a complete adjudication.

The agency cannot accept these arguments. MVMA strains the meaning of the term "violation" by attempting to make the completion of an adjudication an element of the unlawful conduct. Section 507(3) specifies the conduct which is to be considered unlawful as "the failure of any person (A) to comply with any provision of this part applicable to such person. . . ." The requirement for a public hearing established in section 508(a)(2) is a prerequisite to the assessment of civil penalties, but if, after the completion of the hearing, the agency's view that a violation has occurred is vindicated, then penalties may properly be assessed for each day since the violation (i.e., unlawful con-

duct) first occurred. Any other reading of the statute would encourage those subject to the requirements of the Act to delay in complying with those requirements.

MVMA's argument is essentially identical to the one it made with respect to the agency's interim rule on Information Gathering Powers, 42 FR 64628, December 27, 1977, and rejected at the time a final rule on that subject was established. See 45 FR 29032. The preamble to that rule discusses cases decided under statutes with statutory language similar to Title V of the Act. That discussion concludes that penalties should accrue from the date of the actual unlawful conduct, and that legal remedies exist to prevent penalties from adding up during the course of a non-frivolous challenge to the enforcement action. However, to remove any ambiguity in the regulations, the time when civil penalties begin accruing has been clarified in the final procedures, as requested by MVMA.

MVMA also raises several objections about the provisions in the interim procedures for intervention. These objections are generally based on the concern that interveners might cause "unnecessary confusion and delay" and thereby adversely affect the rights of respondents. The Act permits "any interested person" to participate in enforcement proceedings, but does not specify the nature of that "participation" right.

A number of authorities apparently support limiting the extent of the participation in these enforcement proceedings to the "non-intervener" status established in the interim procedures. According to the Administrative Conference of the United States,

Intervention or other participation in enforcement or license revocation proceedings should be permitted when a significant objective of the adjudication is to develop and test a new policy or remedy in a precise factual setting or when the prospective intervener is the de facto charging party. Public participation in enforcement proceedings, license revocations or other adjudications where the issue is whether the charged respondent has violated a settled law or policy should be permitted only after close scrutiny of the effect of intervention or other participation on existing parties.

Recommendations of the Administrative Conference of the United States 1 CFR 301.71-6. Support for this

view is contained in Cramton, "The Why, Where, and How of Broadened Public Participation in the Administrative Process," 60 Georgetown Law Journal 525 (1972) and Gellhorn, "Public Participation in Administrative Proceedings," 81 Yale Law Journal 159 (1972). The scope of participation should depend on "the nature of the issues, the intervenor's interests, its ability to present relevant evidence and arguments, and the number, interests and capacities of the other parties." Administrative Conference, id.

The agency concurs with these authorities and believes that the rights accorded "non-interveners" under the interim procedures are sufficient for all public participants. The non-interveners were authorized to make a written or oral statement of position, file proposed findings of fact, conclusions of law and a post hearing brief, and file an appellate brief if an appeal is taken. Typical of the issues which are likely to be raised in an enforcement proceeding under the Act are questions relating to the agency's authority to compel the submission of information. Issues of this type would likely be resolved on the basis of written briefs and oral arguments by all parties in the proceeding, and all participants have the right to make this type of submission. Issues involving EPA test procedures and data are expected to be resolved before that agency, and results of hearings on those issues before EPA would be accepted by NHTSA. For hearings involving purely factual disputes, such as whether an automobile dealer properly displayed gas mileage booklets, it is unlikely that there will be any great interest in participation in any capacity, much less as a full party.

Therefore, the agency is limiting participation in enforcement proceedings by individuals and organizations other than the agency and the respondent to the rights given "participants" under the interim procedures. *Anyone* who desires to participate in these proceedings may do so in this manner.

MVMA also raises several issues relating to settlement of cases involving alleged violations of the requirements of Title V. Their first objection relates to the extent to which NHTSA may compromise or settle cases involving violations of fuel economy standards. MVMA interprets the regulations to prohibit settlements even where, after commencement of a proceeding, a clear error is

discovered in the basis for the action. In such cases, the agency agrees that completion of the proceeding on the basis of erroneous information would be inappropriate. The regulations permit "confession of error" type settlements through an amended complaint. See section 511.13.

MVMA also suggests that criteria be added to section 511.26 of the regulations to provide guidance about the manner in which the agency would exercise its discretion to settle non-standard cases. MVMA suggests that such factors as the gravity of a violation and any good faith efforts to comply be considered. The agency agrees that these are relevant factors to be considered in settling such a case, and the regulations have been amended accordingly.

MVMA objects to NHTSA's characterization of the authority to compromise standards-enforcement cases as "discretionary," suggesting rather that when any of the situations specified in section 508(b)(3) exists (bankruptcy, strike, fire, etc.), an offset in the amount of the assessed civil penalty should be automatic. MVMA fails to explain Congress' use of discretionary, rather than mandatory, language in that provision, however. Therefore, the agency remains of the view that, when the public interest so requires, the agency may not accept an offer of settlement based on one of the enumerated criteria. In attempting to determine whether the public interest requires the agency to accept a particular offer of compromise, the agency needs, contrary to MVMA's assertion, information on any steps a manufacturer has taken to mitigate the effect of factors such as a fire or a strike, financial documents assessing the manufacturer's ability to pay civil penalties, and the basis for any FTC certification that payment of penalties would result in a "substantial lessening of competition." This information would be used by NHTSA to assess the good faith of the manufacturer in seeking the compromise and the probability that harm would result from payment of penalties. Similarly, the imposition of conditions on a settlement is specifically authorized by section 508(b)(3), and the agency has elected to require conditions (usually some not otherwise specifically required action to promote improved automotive fuel economy) in most cases. This is done to help assure that the settlement is in the public interest and that the manufacturer has in fact acted in good faith by taking all reasonable actions to increase the average

fuel economy of its fleet of automobiles. Also, section 511.26(e) is revised to clarify that the Presiding Officer is to transmit all settlement proposals to the Administrator.

MVMA argues that the interim procedures should be amended to require that the Administrator provide a discussion of the basis for any denial of a settlement offer. The regulations currently require such a discussion whenever a settlement is allowed. The agency agrees that such a requirement is appropriate to provide the public with an explanation of the basis for the agency's refusal to exercise its discretionary authority to reduce civil penalties.

MVMA raises two points with respect to the application of earned monetary credits to civil penalties assessed for violations of fuel economy standards. First, it is noted that the regulations fail to acknowledge the existence of the credit scheme established in section 508 of the Act, and it is recommended that the regulations be amended to do so. NHTSA has no objection to making such an addition to the current procedures.

MVMA and GM also argue that the reduction of civil penalty liabilities in cases where one of the events specified in section 508(b)(3)(B) occurs (fire, strike, act of God) should be made without corresponding reduction of a monetary credit which may exist for that manufacturer in another model year. The Act authorizes the Secretary of Transportation to reduce a civil penalty for a particular model year if that penalty was due in whole or part to one of the specified fortuitous events which affected that year's fleet of vehicles. Nothing in the statute requires that another year's earned credits would be affected by such a reduction, and the agency does not contemplate requiring that credits be used in such a situation.

MVMA's final major objection relates to the manner in which test related issues will be raised in enforcement hearings. That organization notes in its comments that the preamble to the interim procedures indicated that official notice might be taken of EPA fuel economy test results in some circumstances. It was not the agency's intention to imply that test related issues would not be challengeable by a manufacturer. Indeed, the agency recognizes that the main factual questions involved in a standards-enforcement case may involve the acceptance or rejection of manufacturer-supplied fuel economy data, and other

issues such as the comparability of results of test procedures used for measuring fuel economy to results obtained under 1975 test procedures (see section 503(d) of the Act). However, the agency anticipates that issues involving aspects of the fuel economy program which are administered by EPA will be raised before that agency, not NHTSA. MVMA suggests that NHTSA adopt some form of compulsory joinder provision in the regulations, whereby EPA would be made a party in any hearing in which test related issues are implicated. However, NHTSA knows of no precedent for such a provision, and has doubt about the existence of any authority for one Federal agency to compel the participation of another agency in the former's proceedings.

Although the agency is not at this time making any changes in the regulations dealing with procedures for resolving test procedure related questions, it is considering seeking public comment on an amendment to these rules which would require that those issues be raised before EPA. EPA currently has a procedure for resolving disputes on these matters (see 40 CFR 600.009) which should satisfy the requirements of the Act for determination "on the record" of violations of fuel economy requirements. Further, that agency is best equipped by reason of its expertise to resolve these technical issues under the statutory division of responsibilities within the government. Ideally, test related issues would be resolved solely before the EPA, with the results of EPA's hearings being accepted by NHTSA as *res judicata*. This approach would avoid any duplication of effort resulting from hearings on the same issues before two different agencies.

Also suggested by MVMA are a number of technical amendments to the regulations, which are intended to make the language used more consistent with that used in the Federal Rules of Civil Procedure (FRCP) and the Federal Rules of Evidence. The main advantage of relying on the language used in these judicial rules is that reference can be made to a body of a case law construing that language where it is ambiguous, while interpreting new language might involve dealing with a series of cases of first impression. It was mainly for that reason that the agency relied in part on the Federal Rules of Civil Procedure as a model for certain provisions in the interim procedures. See 49 FR 47508.

First, MVMA suggests changing the criterion for permitting joinder of proceedings from the "similar issues" requirement of the interim procedures, to a requirement of a "common question of law or fact," as specified in Rule 42(a) of the FRCP. Also, MVMA suggests permitting joinder where to do so would "tend to avoid unnecessary costs or delay" as required under Rule 42(a), rather than "to such extent and upon such terms as may be deemed proper," as the interim procedures permitted. In addition, MVMA recommends the addition of a provision like that in Rule 42(b) which would permit separate hearings where doing so would promote economy or convenience or would avoid prejudice to a party. Since adopting these suggestions would help clarify the procedures, the final rule has been amended accordingly.

A number of changes to the interim procedures in the area of discovery are also suggested by MVMA. First, MVMA suggests that the discovery procedures be modeled more closely after Rule 26 of the FRCP, for reasons of ease of application (as discussed earlier) and fairness. The interim procedures provided that all relevant material is discoverable, with the only stated exception being documents accompanying the agency staff's recommendation as to whether a complaint should issue. The Rule 26 procedure would exclude attorney's work product, the mental impressions, conclusions, and opinions of a party's attorney, and would permit discovery of materials prepared in anticipation of litigation only on a showing of need and the inability to obtain the same material in some other manner. Considerations of fairness militate in favor of making this change. The factual portions of documents accompanying the agency staff's recommendations on a complaint would be made available to all parties, as part of the complaint, and the opinion portions of that material would be protected under Rule 26-type procedure. Further, the privileged status of attorney's work product is well established in both judicial and administrative contexts. Therefore, the final procedures adopt this recommendation.

MVMA also recommends that only those experts who may be called to testify should be subject to discovery. The agency cannot accept this suggestion. It may be that certain experts within a corporation may hold opinions which are highly relevant to a proceeding, but those experts may

not be called as witnesses by the corporation. Without the opportunity for opposing parties to obtain information on the identity and views of these individuals through discovery, it would be impossible for those parties to determine whether the experts should be called as witnesses, and relevant information and qualified opinions could be lost. Therefore, the provision in the interim procedures is retained in the final procedures.

The interim procedures could be interpreted to require that the person who answered each individual written interrogatory must sign that answer and MVMA recommends clarifying this point to permit a single representative of a corporate party to sign. The agency is adopting this suggestion. MVMA also suggests that the 20 day period for responding to a request for production of documents be extended to 30 days. However, the interim procedures already permit the 20 day period to be extended, when necessary. Therefore, in the interest of expediting proceedings, this recommendation was not adopted in the final procedures. MVMA's recommendation that testimony of any party or its representatives be permitted as soon as an answer is filed has been adopted, to make that provision consistent with the rest of the discovery provisions in the regulation. The interim procedures vested substantial control over such testimony in the Presiding Officer, and this control is retained in the final procedures. The Presiding Officer can assure that parties do not abuse the right to have such testimony taken to create delay, or where written forms of discovery would be more appropriate. The interim procedures have also been amended to permit parties to preserve the testimony of any witness, not just the parties' own witnesses. However, the reference in the MVMA comments to perpetuation of testimony pursuant to Rule 27 of the FRCP is not applicable to the provision found in section 511.35(h). This provision is intended to permit the taking and preservation of testimony from a witness who is expected to be unable to attend the hearing, but not prior to the commencement of the proceeding as is permitted by Rule 27. Because administrative law judges will not ordinarily be appointed until after proceedings begin, it will be impracticable to obtain leave of the Presiding Officer to perpetuate testimony in anticipation of a complaint not yet issued. Moreover, adjudicative proceedings under the Act are unlikely to present issues of fact deter-

minable exclusively upon the testimony of unique witnesses who might be available to testify only at times before the commencement of proceedings. Therefore the agency does not perceive a need for proving a procedure for perpetuation of testimony fully analogous to that found in Rule 27 of the FRCP.

Also in accord with the decision to conform as much as practicable with the language of the FRCP where a similar procedure is intended, the prescribed uses of deposition testimony found in 511.35(i) are amended to parallel Rule 32 of the FRCP.

MVMA also argues that some of the sanctions specified in the interim procedures for failure to comply with a discovery order are too extreme, have no counterpart in the FRCP, and should be eliminated. The cited sanction, excluding all matter obtained in discovery or excluding the recalcitrant party, does in fact have a counterpart in the FRCP (see Rule 37(b)(1)(B) and (C) which permit prohibitions on introducing "designated matters in evidence" and "rendering a judgment by default against the disobedient party") and would only be applied where "just," as in the FRCP. Therefore, no change to the interim procedures is made with respect to this point. Nor has the agency adopted MVMA's suggestion that sanctions be imposed immediately or not at all. The significance of a failure to comply with a discovery order may not become fully apparent until well after the failure to comply.

Modifications to the procedure for motions to quash or limit subpoenas were also suggested by MVMA. MVMA suggests that provision be made for extending the time to respond to the subpoena or the motion to quash, that an appeal procedure be added, that denials of motions to quash be made on the record, and that the Presiding Officer be permitted to modify subpoenas. Section 511.15 of the interim procedures already provides for time extensions, when necessary. Interlocutory appeals are permitted on these matters where confidential information is involved or where compliance with the subpoena somehow involves a controlling question of law or policy. The time limit for the filing of an application for interlocutory appeal has been clarified to make it applicable to all such applications and not just those advancing one of the grounds set forth in section 511.24(b)(1). Appeals are also permitted

after a final decision under the interim procedures. Allowing appeals in other cases would unnecessarily delay the proceeding. The agency has adopted suggestions by MVMA that reasons for denials of motions to quash be provided on the record and that "modifications" of a subpoena be authorized.

MVMA further suggests elimination of "confusion of issues" as grounds for excluding evidence. As MVMA notes, this factor appears in the Federal Rules of Evidence primarily to apply to jury trials, where jurors might be unable to deal with certain complex issues. This factor is deleted in the final procedures since it is not fully relevant and tends to duplicate the criteria of relevance, undue delay, and the needless presentation of cumulative evidence.

The final group of objections raised by MVMA involve the handling of *in camera* or confidential materials. First, it is argued that certain information beyond that protected under the Freedom of Information Act 5 U.S.C. 552, should be entitled to *in camera* treatment in an enforcement hearing. Among this type of material would be material which might be embarrassing or otherwise sensitive, but which would not qualify as a trade secret or fall within any of the other exempt classes of information in the Freedom of Information Act. The agency cannot accept this contention since section 505(d)(1) of the Cost Savings Act requires the agency to disclose any fuel economy related information to the public, except in the case of trade secret information.

The procedures have been clarified to permit interlocutory appeals of a ruling of the Presiding Officer denying *in camera* treatment for information claimed to be confidential. The interim procedures permitted an immediate appeal on rulings requiring the production of documents claimed to be confidential, but not explicitly in the similar situation involving a denial of *in camera* treatment. All such rulings are automatically stayed for 10 days, permitting the aggrieved party to appeal.

MVMA has suggested that advance determinations of confidentiality be made by the agency (i.e., a submitter of information would be permitted to withdraw that information if a request for *in camera* treatment is denied). The agency will address this question in detail in its forthcoming final rule on Confidential Business Information.

Until that rule is issued, the agency will abide by its proposed procedures which do not provide for advance determinations (due to concerns about consistency with the Freedom of Information Act). See 43 FR 22412 (May 25, 1978).

MVMA requests that criteria and procedures be established for denying requests for *in camera* treatment. The interim procedures specified that the criteria and procedures to be used are those for determining whether information is entitled to confidential treatment under the Freedom of Information Act, as noted above. Those criteria and procedures are spelled out in that Act, in the case law under that Act, and in the agency's proposed confidentiality regulations cited in the previous paragraph. Therefore, no change to the interim procedures is being made in this area.

MVMA also argues that reference must be made in the regulations to 44 U.S.C. 3508, which provides generally that when an agency receives confidential information from another government agency, employees of the receiving agency are fully liable for any unauthorized release of that information. In this regard, MVMA claims that the provisions of 44 U.S.C. 3508 govern and "take precedence over" any decision by the agency to release the information. If the implication of this comment is that NHTSA is bound by the determination of the agency that provides the information that the information is confidential, or that NHTSA's discretionary authority to release confidential information does not apply to information obtained from another agency, then NHTSA cannot agree that 44 U.S.C. 3508 compels that result. NHTSA agrees that the statutory provision in question applies to an unauthorized release of confidential information obtained from another agency, but no conflict between that provision and the current procedures is apparent. Therefore, no change to the regulation is required on this point.

At the request of MVMA, the interim procedures have been clarified to assure that the granting of motions for access to *in camera* materials will be done on the record. This was implicit in the regulation, since the granting of such a motion must be accompanied by a protective order preventing unnecessary disclosure of the information.

MVMA also recommends that sanctions be

specified in the regulations for the unauthorized release by a party of *in camera* materials. Suggested sanctions include denial of the right to continue as a party of participant and the denial of access to other *in camera* materials. Section 511.76 of the interim procedures permits the exclusion of a party, participant, or one of their representatives in such a case. The agency agrees that it is appropriate to add the second sanction mentioned above to the regulations, and will do so in the final procedures. However, the agency fails to see how MVMA's recommendation that persons seeking access to confidential information be required to agree in writing and in advance to comply with the terms of a protective order will have any added impact on a party or other person who is unwilling to comply with the order.

MVMA's final comment notes that the agency should not lightly use its discretionary authority to release confidential information. To date, the agency has rarely used this authority under section 505(d)(1) of the Cost Savings Act, and has taken steps to minimize the impact of such a release on the submitter of the information when the authority has been used. This policy will continue.

A small number of further minor changes have been made to the regulations in the interest of reducing unnecessary burdens on parties or participants in proceedings and on the agency itself. First, the interim procedures imply that a full scale hearing is held each time a complaint is issued, whether the respondent wants the full hearing or not. The final procedures permit respondents to *request* a full hearing (and such requests will always be honored) or permits the respondent to make its case solely on written submissions or otherwise, if it desires. Also, some requirements as to the size of paper on which documents are printed, the size of margins, and the type of print to be used have been deleted. Finally, the requirement that a copy of the entire complaint in every enforcement case (including dealer-mileage guide cases) be printed in the *Federal Register* has been deleted in favor of a more limited requirement that a notice be published generally describing the proceeding and providing information on public participation in the proceeding.

The agency has determined that the establish-

ment of these procedures does not constitute a "major Federal Action significantly affecting the environment," and therefore, an environmental impact statement is not required. Nor should these procedures establish any additional costs beyond those imposed by the Cost Savings Act itself. Therefore, no Regulatory Analysis is required to be prepared under Executive Order 12221.

Issued on December 3, 1980.

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Joan Claybrook  
Administrator

**45 FR 81574**  
**December 11, 1980**



## MOTOR VEHICLE SAFETY STANDARD NO. 511

### Adjudicative Procedures

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- Appendix I—Final Prehearing Order.

Authority: Sec. 9, Pub. L. 89-670, 80 Stat. 981 (49 U.S.C. 1657); Sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 20002); delegation of authority at 41 FR 25015, June 22, 1976.

## Subpart A—Scope of Rules; Nature of Adjudicative Proceedings, Definitions

### § 511.1 Scope of the rules.

This part establishes rules of practice and procedure for adjudicative proceedings conducted pursuant to section 508(a)(2) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. Pub. L. 94-163, 89 Stat. 911, Sec. 2008(a)(2)), which are required by statute to be determined on the record after opportunity for a public hearing.

### § 511.2 Nature of adjudicative proceedings.

Adjudicative proceedings shall be conducted in accordance with title 5, United States Code, sections 551 through 559 and this part. It is the policy of the agency that adjudicative proceedings shall be conducted expeditiously and with due regard to the rights and interests of all persons affected, and to the public interest. Therefore, the presiding officer and all parties shall make every effort at each stage of a proceeding to avoid unnecessary delay.

### § 511.3 Definitions.

As used in this part:

(1) The term “application” means an *ex parte* request by a party for an order that may be granted or denied without opportunity for response by any other party.

(2) The term “NHTSA” means the National Highway Safety Administration.

(3) The term “Administrator” means the Administrator of the National Highway Safety Administration.

(4) The term “Complaint Counsel” means prosecuting for the NHTSA.

(5) The term “motion” means a request by a party for a ruling or order that may be granted or denied only after opportunity for response by each affected party.

(6) The term “party” means the NHTSA, and any person named as a respondent in a proceeding governed by this part.

(7) The term “person” means any individual, partnership, corporation, association, public or private organization, or Federal, State or municipal governmental entity.

(8) The term “petition” means a written request, made by a person or a party and addressed to the Presiding Officer or the Administrator, that the addressee take some action.

(9) The term “Presiding Officer” means the person who conducts an adjudicative hearing under this part, who shall be an administrative law judge qualified under title 5, United States Code, section 3105 and assigned by the Director, Office of Administrative Law Judges, Office of Personnel Management.

(10) The term “Respondent” means any person against whom a complaint has been issued.

(11) The term “Executive Secretary” means the Executive Secretary of the National Highway Traffic Safety Administration.

(12) The term “staff” means the staff of the National Highway Traffic Safety Administration.

## Subpart B—Pleadings; Form; Execution; Service of Documents

### § 511.11 Commencement of proceedings.

(a) *Notice of institution of an enforcement proceeding.* An adjudicative proceeding under this part is commenced by the issuance of a complaint by the NHTSA.

(b) *Form and content of complaint.* The complaint shall be signed by the Complaint Counsel and shall contain the following:

(1) Recital of the legal authority for instituting the proceeding, with specific designation of the statutory provisions involved in each allegation.

(2) Identification of each respondent.

(3) A clear and concise statement of the charges, sufficient to inform each respondent with reasonable definiteness of the factual basis of the allegations of violation. A list and summary of documentary evidence supporting the charges shall be attached.

(4) A statement of the civil penalty which the Complaint Counsel believes is in the public interest, or which is required by law. In the case of civil penalties assessed for violations of section 507(3) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2007(3)), the amount of such penalty shall be calculated from the time of the alleged violation. In the case of civil penalties assessed for violations of section 507(1) and (2) of that Act, any monetary credits available to offset those civil penalties shall be specified.

(5) The right of the respondent to a hearing on the alleged violations.

(c) *Notice to the Public.* Once a complaint is issued, notice of it shall be immediately submitted to the Federal Register for publication. The notice in the Federal Register shall briefly describe the nature of the proceeding and state that permits to participate in the proceeding must be filed no later than the first prehearing conference.

#### **§ 511.12 Answer.**

(a) *Time for filing.* A respondent shall have twenty (20) days after service of a complaint within which to file an answer.

(b) *Content of answer.* An answer shall conform to the following:

(1) *Request for hearing.* Respondent shall state whether it requests a full, adjudicatory hearing or whether it desires to proceed on the basis of written submissions. If a hearing is requested, respondent shall specify those issues on which a hearing is desired.

(2) *Contested allegations.* An answer in which the allegations of a complaint are contested shall contain:

(i) Specific admission or denial of each allegation in the complaint. If the respondent is without knowledge or information sufficient to form a belief as to the truth of an allegation, respondent shall so state. Such a statement shall have the effect of a denial. Denials shall

fairly meet the substance of the allegations denied. Allegations not thus answered shall be deemed to have been admitted.

(ii) A concise statement of the factual and/or legal defenses to each allegation of the complaint.

(3) *Admitted allegations.* If the respondent admits or fails to deny any factual allegation, he or she shall be deemed to have waived a hearing as to such allegation.

(c) *Default.* Failure of the respondent to file an answer within the time provided (or within an extended time, if provided), shall be deemed to constitute a waiver of the right to appear and contest the allegations set forth in the complaint and to authorize the Presiding Officer to make such findings of fact, as are reasonable under the circumstances.

#### **§ 511.13 Amendments and supplemental pleadings.**

Whenever determination of a controversy on the merits will be facilitated thereby, the Presiding Officer upon motion, may allow appropriate amendments and supplemental pleadings which do not unduly broaden the issues in the proceeding or cause undue delay.

#### **§ 511.14 Form and filing of documents.**

(a) *Filing.* Except as otherwise provided, all documents submitted to the Administrator or a Presiding Officer shall be addressed to and filed with the Executive Secretary. Documents may be filed in person or by mail and shall be deemed filed on the day of filing or mailing.

(b) *Caption.* Every document shall contain a caption setting forth the name of the action in connection with which it is filed, the docket number, and the title of the document.

(c) *Copies.* An original and nine (9) copies of all documents shall be filed. Documents may be reproduced by printing or any other process, provided that all copies filed are clear and legible.

(d) *Signature.* (1) The original of each document filed shall be signed by a representative of record for the party; or in the case of parties not represented, by the party; or by a partner, officer, or regular employee of any corporation, partnership, or association, who files an appearance on behalf of the party.

(2) The act of signing a document constitutes a representation by the signer that the signer has read it; that to the best of the signer's knowledge, information and belief, the statements made in it are true; and that it is not filed for purposes of delay.

#### § 511.15 Time.

(a) *Computation.* In computing any period of time prescribed or allowed by the rules in this part, the day of the act, event, or default from which the designated period of time begins to run shall not be included. The last day of the period so computed shall be included, unless it is a Saturday, a Sunday, or a legal holiday, in which event the period runs until the end of the next day which is not a Saturday, a Sunday, or a legal holiday. When the period of time prescribed or allowed is less than 7 days, intermediate Saturdays, Sundays, and legal holidays shall be excluded in the computation. As used in this part, "legal holiday" includes New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day, and any other day appointed as a holiday by the President or the Congress of the United States.

(b) *Additional Time After Service by Mail.* Whenever a party is required or permitted to do an act within a prescribed period after service of a document and the document is served by mail, three (3) days shall be added to the prescribed period.

(c) *Extensions.* For good cause shown, the Presiding Officer may extend any time limit prescribed or allowed under this part or by order of the Administrator or the Presiding Officer, except those governing the filing of interlocutory appeals and appeals from Initial Decisions and those expressly requiring the Administrator's action. Except as otherwise provided by law, the Administrator, for good cause shown, may extend any time limit prescribed under this part, or by order of the Administrator or the Presiding Officer. A party or participant may petition the Presiding Officer or the Administrator, as appropriate, for an extension under this paragraph. Such a petition shall be filed prior to the occurrence of the time limit which is the subject of the petition.

#### § 511.16 Service.

(a) *Mandatory service.* Every document filed with the Executive Secretary shall be served upon all parties and participants to a proceeding, i.e., Complaint Counsel, respondent(s), and participants, and upon the Presiding Officer.

(b) *Service of complaint, ruling, order, decision, or subpoena.* Service of a complaint, ruling, order, decision, or subpoena may be effected as follows:

(1) *By registered or certified mail.* A copy of the document shall be addressed to the person, partnership, corporation or unincorporated association to be served at his or its residence or principal office or place of business; registered or certified; and mailed; or

(2) *By delivery to an individual.* A copy of the document may be delivered to the person to be served; or to a member of the partnership to be served; or to the president, secretary, or other executive officer, or a director of the corporation or unincorporated association to be served; or to an agent authorized by appointment or by law to receive service; or

(3) *By delivery to an address.* A copy of the document may be left at the principal office or place of business of the person, partnership, corporation, unincorporated association, or authorized agent with an officer, a managing or general agent; or it may be left with a person of suitable age and discretion residing therein, at the residence of the person or of a member of the partnership or of an executive officer, director, or agent of the corporation or unincorporated association to be served.

(c) *Service of documents with prescribed response periods.* When service of a document starts the running of a prescribed period of time for the submission of a responsive document or the occurrence of an event, the document shall be served as provided in paragraph (b) of this section.

(d) *Service of other documents.* All documents other than those specified in paragraph (c) of this section may be served as provided in paragraph (b) of this section, or by ordinary first-class mail, properly addressed, postage prepaid.

(e) *Service on a representative.* When a party has appeared by an attorney or other representative, service upon that attorney or other representative shall constitute service on the party.

(f) *Certificate of service.* The original of every document filed with the agency and required to be served upon all parties to a proceeding shall be accompanied by a certificate of service signed by the party making service, stating that such service has been made upon each party to the proceeding. Certificates of service may be in substantially the following form:

Dated at \_\_\_\_\_, this \_\_\_\_\_  
day of \_\_\_\_\_, 19\_\_\_\_.  
(Signature) \_\_\_\_\_  
For \_\_\_\_\_

(g) *Date of Service.* The date of service of a document shall be the date on which the document is deposited in the United States mail or is delivered in person.

#### **§ 511.17 Public participation.**

*Participant Status.* Any person interested in a proceeding commenced pursuant to § 511.11 who desires to participate in the proceeding, shall file with the Executive Secretary a notice of intention to participate in the proceeding and shall serve a copy of such notice on each party to the proceeding. A notice of intention to participate shall be filed not later than the commencement of the hearing. Untimely filings will not be accepted absent a determination by the Presiding Officer that the person making the request has made a substantial showing of good cause for failure to file on time. Any person who files a notice to participate in the proceeding as a nonparty shall be known as a "participant" and shall have the rights specified in § 511.41(d).

#### **§ 511.18 Joinder of proceedings.**

Two or more matters which have been scheduled for adjudicative proceedings, and which involve one or more common questions of law or fact, may be consolidated for the purpose of hearing, appeal or the Administrator's review. A motion for consolidation for purpose of hearing may be filed with the Presiding Officer by any party to such proceedings not later than thirty (30) days prior to the hearing. A motion for consolidation for the purpose of appeal may be filed by any party to such proceedings within 10 days after issuance of the Initial Decision. A motion to consolidate shall be served upon all parties to all proceedings whose joinder is contemplated. The proceedings may be consolidated where to do so would tend to avoid

unnecessary costs or delay. Such consolidation may also be ordered upon the initiative of the Presiding Officer or the Administrator, as appropriate. The Presiding Officer may order separate hearings on any issue where to do so would promote economy or convenience or would avoid prejudice to a party.

### **Subpart C—Prehearing Procedures; Motions; Interlocutory Appeals; Summary Judgment; Settlement**

#### **§ 511.21 Prehearing conferences.**

(a) *When held.* (1) A prehearing conference shall be held in person or by conference telephone call, except in unusual circumstances, approximately fifty (50) days after publication in the Federal Register of the complaint, upon ten (10) days notice to all parties and participants, to consider any or all the following:

- (i) Motions for consolidation of proceedings;
- (ii) Identification, simplification and clarification of the issues;
- (iii) Necessity or desirability of amending the pleadings;
- (iv) Stipulations and admissions of fact and of the content and authenticity of documents;
- (v) Oppositions to notices of oral examination;
- (vi) Motions for protective orders to limit or modify discovery;
- (vii) Issuance of subpoenas to compel the appearance of witnesses and the production of documents;
- (viii) Limitation of the number of witnesses, particularly the avoidance of duplicate expert witnesses;
- (ix) Matter of which official notice will be taken and matters which may be resolved by reliance upon findings of other Federal agencies; and
- (x) Other matters which may expedite the conduct of the hearing.

#### **§ 511.22 Prehearing briefs.**

Not later than ten (10) days prior to the hearing, the parties shall, except when ordered otherwise by the Presiding Officer in unusual circumstances, simultaneously serve and file prehearing briefs, which shall set forth (a) a statement of the facts

expected to be proved, and of the anticipated order of proof; (b) a statement of the issues and the legal argument in support of the party's contentions with respect to each issue; and (c) a table of authorities with a designation by asterisk of the principal authorities relied upon.

#### § 511.23 Motions.

(a) *Presentations and dispositions.* During the time a proceeding is before a Presiding Officer, all motions, whether oral or written, except those filed under § 511.42(e), shall be addressed to the Presiding Officer, who shall rule upon them promptly after affording an opportunity for response.

(b) *Written motions.* All written motions shall state the particular order, ruling, or action desired and the grounds therefore. If a motion is supported by memoranda, affidavits or other documents, they shall be served and filed with the motion. All motions shall contain a proposed order setting forth the relief sought. All written motions shall be filed with the Executive Secretary and served on all parties, and all motions addressed to the Administrator shall be in writing.

(c) *Responses.* Within ten (10) days after service of any written motion or petition or within such longer or shorter time as may be designated by these Rules or by the Presiding Officer or the Administrator, the opposing party or parties shall file a written response to such motion. Where a motion would affect only a single party, or an identifiable group of parties, the Presiding Officer or Administrator may limit the response to the motion to the affected party or parties. Failure to respond to a written motion may, in the discretion of the Presiding Officer be deemed as consent to the granting of the relief sought in the motion. The moving party shall have no right to reply, except as permitted by the Presiding Officer or the Administrator.

(d) *Rulings on motions for dismissal.* When a motion to dismiss a complaint or motion for other relief is granted with the result that the proceeding before the Presiding Officer is terminated, the Presiding Officer shall issue an Initial Decision and Order thereon in accordance with the provisions of § 511.51. If such a motion is granted as to all issues alleged in the complaint in regard to some, but not all, the respondents, or is granted as to any part of the allegations in regard to any or all the

respondents, the Presiding Officer shall enter an order on the record and consider the remaining issues in the Initial Decision. The Presiding Officer may elect to defer ruling on a motion to dismiss until the close of the case.

#### § 511.24 Interlocutory appeals.

(a) *General.* Rulings of the Presiding Officer may not be appealed to the Administrator prior to the Initial Decision, except as provided herein.

(b) *Exceptions—(1) Interlocutory appeals to Administrator.* The Administrator may, in his or her discretion, entertain interlocutory appeals where a ruling of the Presiding Officer:

(i) Requires the production or disclosure of records claimed to be confidential;

(ii) Requires the testimony of a supervisory official of the agency other than one especially cognizant of the facts of the matter in adjudication;

(iii) Excludes an attorney from participation in a proceeding pursuant to § 511.42(b).

(2) *Procedures for interlocutory appeals.* Within ten (10) days of issuance of a ruling, any party may petition the Administrator to entertain an interlocutory appeal on a ruling in the categories enumerated above. The petition shall not exceed fifteen (15) pages. Any other party may file a response to the petition within ten (10) days of its service. The response shall not exceed fifteen (15) pages. The Administrator shall thereupon act upon the petition, or the Administrator shall request such further briefing or oral presentation as he may deem necessary.

(3) *Interlocutory appeals from all other rulings—(i) Grounds.* Interlocutory appeals from all other rulings by the Presiding Officer may proceed only upon motion to the Presiding Officer and a determination by the Presiding Officer in writing, with justification in support thereof, that the ruling involves a controlling question of law or policy as to which there is substantial ground for differences of opinion and that an immediate appeal from the ruling may materially advance the ultimate termination of the litigation, or that subsequent review will be an inadequate remedy.

(ii) *Form.* If the Presiding Officer determines, in accordance with paragraph (b)(3)(i) of this section that an interlocutory appeal may

proceed a petition for interlocutory appeal may be filed with and acted upon by the Administrator in accordance with paragraph (b)(2) of this section.

(c) *Proceedings not stayed.* A petition for interlocutory appeal under this part shall not stay the proceedings before the Presiding Officer unless the Presiding Officer shall so order, except that a ruling of the Presiding Officer requiring the production of records claimed to be confidential shall be automatically stayed for a period of (10) days following the issuance of such ruling to allow an affected party the opportunity to file a petition for an interlocutory appeal pursuant to § 511.24(b)(2). The filing of such a petition shall automatically extend the stay of such a ruling pending the Administrator's action on such petition.

#### **§ 511.25 Summary decision and order.**

(a) *Motion.* Any party may move, with a supporting memorandum, for a Summary Decision and Order in its favor upon all or any of the issues in controversy. Complaint Counsel may so move at any time after thirty (30) days following issuance of a complaint, and any other party may so move at any time after issuance of a complaint. Any such motion by any party shall be filed at least twenty (20) days before the date fixed for the adjudicatory hearing.

(b) *Response to motion.* Any other party may, within ten (10) days after service of the motion, file a response thereto with a supporting memorandum.

(c) *Grounds.* A Summary Decision and Order shall be granted if the pleadings and any testimony upon oral examination, answers to interrogatories, admissions, and/or affidavits show that there is no genuine issue as to any material fact and that the moving party is entitled to a Summary Decision and Order as a matter of law.

(d) *Legal effect.* A Summary Decision and Order upon all the issues being adjudicated shall constitute the Initial Decision of the Presiding Officer, and may be appealed to the Administrator in accordance with § 511.53. A Summary Decision, interlocutory in character, may be rendered on fewer than all issues and may not be appealed prior to issuance of the Initial Decision, except in accordance with § 511.24.

(e) *Case not fully adjudicated on motion.* A Summary Decision and Order that does not dispose of the whole case shall include a statement of those material facts as to which there is no substantial controversy, and of those material facts that are actually and in good faith controverted. The Summary Order shall direct such further proceedings as are just.

#### **§ 511.26 Settlement.**

(a) *Applicability.* This section applies only to cases of alleged violations of section 507(3) of the Motor Vehicle Information and Cost Savings Act, Pub. L. 94-163, 89 Stat. 911 (15 U.S.C. Section 2007(3)). Settlement in other cases may be made only in accordance with Subpart G of this part.

(b) *Availability.* Any party shall have the opportunity to submit an offer of settlement to the Presiding Officer.

(c) *Form.* Offers of settlement shall be in the form of a consent agreement and order, shall be signed by the party submitting the offer or his representative, and may be signed by any other party. Each offer of settlement shall be accompanied by a motion to transmit to the Administrator the proposed agreement and order, outlining the substantive provisions of the agreement, and the reasons why it should be accepted.

(d) *Contents.* The proposed consent agreement and order which constitute the offer of settlement shall contain the following:

- (1) An admission of all jurisdictional facts;
- (2) An express waiver of further procedural steps, and of all rights to seek judicial review or otherwise to contest the validity of the order;
- (3) A description of the alleged non-compliance, or violation;
- (4) Provisions to the effect that the allegations of the complaint are resolved by the proposed consent agreement and order;
- (5) A listing of the acts or practices from which the respondent shall refrain;
- (6) A detailed statement of the corrective action(s) which the respondent shall execute and the civil penalty, if any, that respondent shall pay.

(e) *Transmittal.* The Presiding Officer shall transmit to the Administrator for decision all offers of settlement and accompanying memoranda that meet the requirements enumerated in paragraph

(d) of this section. The Presiding Officer may, but need not, recommend acceptance or rejection of such offers. Any party or participant, may object to a proposed consent agreement by filing a motion and supporting memorandum with the Administrator.

(f) *Stay of proceedings.* When an offer of settlement has been agreed to by the parties and has been transmitted to the Administrator, the proceedings shall be stayed until the Administrator has ruled on the offer. When an offer of settlement has been made and transmitted to the Administrator but has not been agreed to by all parties, the proceedings shall not be stayed pending the Administrator's decision on the offer.

(g) *Administrator's ruling.* The Administrator will rule upon all transmitted offers of settlement. If the Administrator accepts the offer, the Administrator shall issue an appropriate order. The order shall become effective upon issuance. In determining whether to accept an offer of settlement, the Administrator will consider the gravity of the alleged violation, and any good faith efforts by the respondent to comply with applicable requirements.

(h) *Rejection.* If the Administrator rejects an offer of settlement, the Executive Secretary shall give written notice of that decision and the reasons therefor to the parties and the Presiding Officer. Promptly thereafter, the Presiding Officer shall issue an order notifying the parties of the resumption of the proceedings, including any modifications to the schedule resulting from the stay of the proceedings.

(i) *Effect of rejected offer.* Rejected offers of settlement shall not be admissible in evidence over the objection of any signatory, nor shall the fact of the proposal of the offer be admissible in evidence.

## **Subpart D—Discovery; Compulsory Process**

### **§ 511.31 General provisions governing discovery.**

(a) *Applicability.* The discovery rules established in this subpart are applicable to the discovery of information among the parties to a proceeding. Parties seeking information from persons not parties may do so by subpoena in accordance with § 511.38.

(b) *Discovery methods.* Parties may obtain discovery by one or more of the following methods: (1) Written interrogatories; (2) requests for pro-

duction of documents or things; (3) requests for admissions; (4) testimony upon oral examination. Unless the Presiding Officer otherwise orders under paragraph (d) of this section, the frequency of use of these methods is not limited.

(c) *Scope of discovery.* The scope of discovery is as follows:

(1) *In general.* Parties may obtain discovery regarding any matter not privileged, which is relevant to the subject matter involved in the proceedings, whether it relates to the claim or defense of the party seeking discovery or to the claim or defense of any other party. It is not ground for objection that the information sought will be inadmissible at the hearing if the information sought appears reasonably calculated to lead to the discovery of admissible evidence.

(2) *Exception.* Parties may not obtain discovery of documents which accompanied the staff's recommendation as to whether a complaint should issue or of documents or portions thereof which would be exempt from discovery under Rule 26(b)(3) of the Federal Rules of Civil Procedure.

(3) *Hearing preparation: Experts.* A party may obtain discovery of facts known and opinions held by experts, regardless of whether they are acquired or developed in anticipation of or for litigation. Such discovery may be had by any of the methods provided in paragraph (b) of this section.

(d) *Protective orders.* Upon motion by a party or person and for good cause shown, the Presiding Officer may make an order which justice requires to protect such party or person from annoyance, embarrassment, competitive disadvantage, oppression or undue burden or expense, including one or more of the following: (1) That the discovery shall not be had; (2) that the discovery may be had only on specified terms and conditions, including a designation of the time and/or place; (3) that the discovery shall be had only by a method of discovery other than that selected by the party seeking discovery; (4) that certain matters shall not be inquired into, or that the scope of discovery shall be limited to certain matters; (5) that discovery shall be conducted with no one present except persons designated by the Presiding



Officer; (6) that a trade secret or other confidential research, development, or commercial information shall not be disclosed or shall be disclosed only in a designated way or only to designated parties; and (7) that responses to discovery shall be placed *in camera* in accordance with § 511.45.

If a motion for a protective order is denied in whole or in part, the Presiding Officer may, on such terms or conditions as are just, order that any party provide or permit discovery.

(e) *Sequence and timing of discovery.* Discovery may commence at any time after filing of the answer. Unless otherwise provided in these Rules or by order of the Presiding Officer, methods of discovery may be used in any sequence and the fact that a party is conducting discovery shall not operate to delay any other party's discovery.

(f) *Supplementation of responses.* A party who has responded to a request for discovery shall supplement the response with information thereafter acquired.

(g) *Completion of discovery.* All discovery shall be completed as soon as practical but in no case longer than one hundred fifty (150) days after issuance of a complaint unless otherwise ordered by the Presiding Officer in exceptional circumstances and for good cause shown. All discovery shall be served by a date which affords the party from whom discovery is sought the full response period provided by these Rules.

(h) *Service and filing of discovery.* All discovery requests and written responses, and all notices of the taking of testimony, shall be filed with the Executive Secretary and served on all parties and the Presiding Officer.

(i) *Control of discovery.* The use of these discovery procedures is subject to the control of the Presiding Officer, who may issue any just and appropriate order for the purpose of ensuring their timely completion.

#### **§ 511.32 Written interrogatories to parties.**

(a) *Availability; procedures for use.* Any party may serve upon any other party written interrogatories to be answered by the party served or, if the party served is a public or private corporation or a partnership or association or governmental agency, by any officer or agent, who shall furnish such information as is available to the party. Inter-

rogatories may, without leave of the Presiding Officer, be served upon any party after filing of the answer.

(b) *Procedures for response.* Each interrogatory shall be answered separately and fully in writing under oath, unless it is objected to, in which event the reasons for objection shall be stated in lieu of an answer. The answers are to be signed by a responsible representative of the respondent and the objections signed by the representative making them. The party upon whom the interrogatories have been served shall serve a copy of the answers, and objections if any, within 30 days after service of the interrogatories. The Presiding Officer may allow a shorter or longer time for response. The party submitting the interrogatories may move for an order under § 511.36 with respect to any objection to or other failure to answer an interrogatory.

(c) *Scope of interrogatories.* Interrogatories may relate to any matters which can be inquired into under § 511.31(c)(1), and the answers may be used to the extent permitted under this part. An interrogatory otherwise proper is not objectionable merely because an answer to the interrogatory would involve an opinion or contention that relates to fact or to the application of law to fact, but the Presiding Officer may order that such an interrogatory need not be answered until a later time.

(d) *Option to produce business records.* Where the answer to an interrogatory may be derived or ascertained from the business records of the party upon whom the interrogatory has been served, or from an examination, audit or inspection of such business records, or from a compilation, abstract or summary based thereon, and the burden of deriving the answer is substantially the same for the party serving the interrogatory as for the party served, it is a sufficient answer to the interrogatory to specify the records from which the answer may be derived or ascertained and to afford to the party serving the interrogatory reasonable opportunity to examine, audit or inspect such records and to make copies, compilations, abstracts, or summaries.

#### **§ 511.33 Production of documents and things.**

(a) *Scope.* Any party may serve upon any other party a request (1) to produce and permit the party making the request, or someone acting on behalf of the party, to inspect and copy any designated documents (including writings, drawings, graphs,

charts, photographs, phono-records, and any other data-compilation from which information can be obtained, translated, if necessary, by the party in possession into reasonably usable form), or (2) to inspect and copy, test or sample tangible things which constitute or contain matters within the scope of § 511.31(c)(1) and which are in the possession, custody or control of the party upon whom the request is served.

(b) *Procedure for request.* The request may be served at any time after the filing of the answer without leave of the Presiding Officer. The request shall set forth the items to be inspected either by individual item or by category, and shall describe each item or category with reasonable particularity. The request shall specify a reasonable time, place and manner for making the inspection and performing the related acts.

(c) *Procedure for response.* The party upon whom the request is served shall serve a written response within twenty (20) days after service of the request. The Presiding Officer may allow a shorter or longer time for response. The response shall state, with respect to each item or category requested, that inspection and related activities will be permitted as requested, unless the request is objected to, in which event the reasons for objection shall be stated. If objection is made to only part of an item or category, that part shall be so specified. The party submitting the request may move for an order under § 511.36 with respect to any objection to or other failure to respond to the request or any part thereof, or to any failure to permit inspection as requested.

#### **§ 511.34 Requests for admission.**

(a) *Procedure for request.* A party may serve upon any other party a written request for the admission, for the purposes of the pending proceeding only, of the truth of any matters within the scope of § 511.31(c)(1) set forth in the request that relate to statements or opinions of fact or if the application of law to fact, including the genuineness of documents described in the request. Copies of documents shall be served with the request unless they have been, or are otherwise, furnished or made available for inspection and copying. The request may, without leave of the Presiding Officer, be served upon any party after filing of the answer. Each matter as to which an admission is requested shall be separately set forth.

(b) *Procedure for response.* The matter as to which an admission is requested is deemed admitted unless within thirty (30) days after service of the request, or within such shorter or longer time as the Presiding Officer may allow, the party to whom the request is directed serves upon the party requesting the admission a written answer or objection addressed to the matter, signed by the party or the party's representatives. If objection is made, the reasons therefore shall be stated.

The answer shall specifically admit or deny the matter or set forth in detail the reasons why the answering party cannot truthfully admit or deny the matter. A denial shall fairly meet the substance of the requested admission. When good faith requires that a party qualify an answer or deny only a part of the matter as to which an admission is requested, the party shall specify the portion that is true and qualify or deny the remainder. An answering party may not give lack of information or knowledge as a reason for failure to admit or deny, unless the party states that he or she has made reasonable inquiry and that the information known or readily available to him or her is insufficient to enable him or her to admit or deny. A party who considers that a matter as to which an admission has been requested presents a genuine issue for hearing may not, on that ground alone, object to the request but may deny the matter or set forth reasons why the party cannot admit or deny it. The party who has requested an admission may move to determine the sufficiency of the answer or objection thereto in accordance with § 511.36. If the Presiding Officer determines that an answer does not comply with the requirements of this section, he or she may order that the matter be deemed admitted or that an amended answer be served.

(c) *Effect of admission.* Any matter admitted under this section is conclusively established unless the Presiding Officer on motion permits withdrawal or amendment of such admission. The Presiding Officer may permit withdrawal or amendment when the presentation of the merits of the action will be served thereby and the party that obtained the admission fails to satisfy the Presiding Officer that withdrawal or amendment will prejudice that party in maintaining an action or defense on the merits.

### § 511.35 Testimony upon oral examination.

(a) *When testimony may be taken.* At any time after the answer is filed under § 511.12, upon leave of the Presiding Officer and under such terms and conditions as the Presiding Officer may prescribe, any party may take the testimony of any other party, including the agents, employees, consultants or prospective witnesses of that party at a place convenient to the witness. The attendance of witnesses and the production of documents and things at the examination may be compelled by subpoena as provided in § 511.38.

(b) *Notice of oral examination.*—(1) *Examination of a party.* A party desiring to examine another party to the proceeding shall, after obtaining leave from the Presiding Officer, serve written notice of the examination on all other parties and the Presiding Officer at least ten (10) days before the date of the examination. The notice shall state (i) the time and place for making the examination; (ii) the name and address of each person to be examined, if known, or if the name is not known, a general description sufficient to identify him; and (iii) the subject matter of the expected testimony. If a subpoena *duces tecum* is to be served on the person to be examined, the designation of the materials to be produced, as set forth in the subpoena, shall be attached to or included in the notice of examination.

(2) *Examination of a nonparty.* A party desiring to examine a person who is not a party to the proceeding shall make application for a subpoena, in accordance with § 511.38, to compel the attendance, testimony and/or production of documents by such person who is not a party. The party desiring such examination shall serve written notice of the examination on all other parties to the proceeding, after issuance of the subpoena by the Presiding Officer of a designated alternate.

(3) *Opposition to notice.* A person served with a notice of examination may, within 3 days of the date of service, oppose, in writing, the examination. The Presiding Officer shall rule on the notice and any opposition and may order the taking of all noticed examinations, upon a showing of good cause therefore. The Presiding Officer may, for good cause shown, enlarge or shorten the time for the taking of an examination.

(c) *Persons before whom examinations may be taken.* Examinations may be taken before any person authorized to administer oaths by the laws of the United States or of the place where the examination is held. No examination shall be taken before a person who is a relative or employee or attorney or representative of any party, or who is a relative or employee of such attorney or representative, or who is financially interested in the action.

(d) *Procedure.*—(1) *Examination.* Each witness shall be duly sworn, and all testimony shall be duly recorded. All parties or their representatives may be present and participate in the examination. Examination and cross-examination of witnesses may proceed as permitted at the hearing. Questions objected to shall be answered subject to the objections. Objections shall be in short form, and shall state the grounds relied upon. The questions propounded and the answers thereto, together with all objections made, shall be recorded by the official reporter before whom the examination is made. The original or a verified copy of all documents and things produced for inspection during the examination of the witness shall, upon a request of any party present, be marked for identification and annexed to the record of the examination.

(2) *Motion to terminate or limit examination.* At any time during the examination, upon motion of any party or of the witness, and upon showing that the examination is being conducted in bad faith or in such manner as unreasonably to annoy, embarrass or oppress the witness or party, the Presiding Officer may, upon motion, order the party conducting the examination to terminate the examination, or may limit the scope and manner of the examination as provided in § 511.31(d).

(3) *Participation by parties not present.* In lieu of attending an examination, any party may serve written questions in a sealed envelope on the party conducting the examination. That party shall transmit the envelope to the official reporter, who shall unseal it and propound the questions contained therein to the witness.

(e) *Transcription and filing of testimony.*—(1) *Transcription.* Upon request by any party, the testimony recorded at an examination shall be transcribed. When the testimony is fully transcribed, the transcript shall be submitted to the witness for examination and signing, and shall be read to or

by the witness, unless such examination and signature are waived by the witness. Any change in form or substance which the witness desires to make shall be entered upon the transcript of the official reporter with a statement of the reasons given by the witness for making them. The transcript shall then be signed by the witness, unless the parties by stipulation waive the signing, or the witness is ill or cannot be found or refuses to sign. If the transcript is not signed by the witness within thirty (30) days of its submission to him, the official reporter shall sign it and state on the record the fact of the waiver of signature or of the illness or absence of the witness or the fact of the refusal to sign, together with a statement of the reasons therefor. The testimony may then be used as fully as though signed, in accordance with paragraph (i) of this section.

(2) *Certification and filing.* The official reporter shall certify on the transcript that the witness was duly sworn and that the transcript is a true record of the testimony given and corrections made by the witness. The official reporter shall then seal the transcript in an envelope endorsed with the title and docket number of the action and marked "Testimony of (name of witness)" and shall promptly file the transcript with the Executive Secretary. The Executive Secretary shall notify all parties of the filing of the transcript and shall furnish a copy of the transcript to any party or to the witness upon payment of reasonable charges therefor.

(f) *Costs of examination.* The party who notices the examination shall pay for the examination. The party who requests transcription of the examination shall pay for the transcription.

(g) *Failure to attend or to serve subpoena; expenses.* If a party who notices an examination fails to attend and proceed therewith and another party attends in person or by a representative pursuant to the notice, the Presiding Officer may order the party who gave the notice to pay the attending party the reasonable expenses incurred. If a party who notices an examination fails to serve a subpoena upon the witness and as a result the witness does not attend, and if another party attends in person or by a representative because that party expects the examination to be made, the Presiding Officer may order the party who gave notice to pay the attending party the reasonable expenses incurred.

(h) *Examination to preserve testimony—*  
(1) *When available.* By leave of the Presiding Officer, a party may examine a witness for the purpose of perpetuating the testimony of that witness. A party who wishes to conduct such an examination shall obtain prior leave of the Presiding Officer by filing a motion. The motion shall include a showing of substantial reason to believe that the testimony could not be presented at the hearing. If the Presiding Officer is satisfied that the perpetuation of the testimony may prevent a failure of justice or is otherwise reasonably necessary, he or she shall order that the deposition be taken.

(2) *Procedure.* Notice of an examination to preserve testimony shall be served at least fifteen (15) days prior to the examination. The examination shall be taken in accordance with the provisions of paragraph (d) of this section. Any examination taken to preserve testimony shall be fully transcribed and filed in accordance with paragraph (e) of this section.

(i) *Use of testimony obtained under this section.* At the hearing or upon a motion or an interlocutory proceeding, any part or all of a deposition, so far as admissible under the rules of evidence applied as though the witness were then present and testifying, may be used against any party who was present or represented at the taking of the deposition or who had reasonable Notice thereof, in accordance with any of the following provisions:

(1) Any deposition may be used by any party for the purpose of contradicting or impeaching the testimony of deponent as a witness.

(2) The deposition of a party or of a person who at the time of the taking of his testimony was an officer, director or managing agent of a party may be used against that party for any purpose.

(3) The deposition of a witness, whether or not a party, may be used by any party for any purpose if the Presiding Officer finds: (i) that the witness is dead; or (ii) that the witness is at a greater distance than 100 miles from the place or the hearing, or is out of the United States, unless it appears that the absence of the witness was procured by the party offering the deposition; or (iii) that the witness is unable to attend or testify because of age, illness, infirmity,

or imprisonment; or (iv) that the party offering the deposition has been unable to procure the attendance of the witness by subpoena; or (v) upon application and notice, that such exceptional circumstances exist as to make it desirable, in the interest of justice and with due regard to the importance of presenting the testimony of witnesses orally in open court, to allow the deposition to be used.

(4) If only part of a deposition is offered in evidence by a party, an adverse party may require him to introduce any other part which ought in fairness to be considered with the part introduced, and any party may introduce any other parts.

#### **§ 511.36 Motions to compel discovery.**

If a party fails to respond to discovery, in whole or in part, the party seeking discovery may move within twenty (20) days for an order compelling an answer, or compelling inspection or production of documents, or otherwise compelling discovery. For purposes of this subsection, an evasive or incomplete response is to be treated as a failure to respond. If the motion is granted, the Presiding Officer shall issue an order compelling discovery. If the motion is denied in whole or in part, the Presiding Officer may make such protective order as it would have been empowered to make on a motion pursuant to § 511.31(d). When making oral examinations, the discovery party shall continue the examination to the extent possible with respect to other areas of inquiry before moving to compel discovery.

#### **§ 511.37 Sanctions for failure to comply with order.**

If a party fails to obey an order to provide or permit discovery, the Presiding Officer may take such action as is just, including but not limited to the following:

(a) Infer that the admission, testimony, document of other evidence would have been adverse to the party;

(b) Order that for the purposes of the proceeding, the matters regarding which the order was made or any other designated facts shall be taken to be established in accordance with the claim of the party obtaining the order;

(c) Order that the party withholding discovery not introduce into evidence or otherwise rely, in support of any claim or defense, upon the documents or other evidence withheld;

(d) Order that the party withholding discovery not introduce into evidence or otherwise use at the hearing, information obtained in discovery;

(e) Order that the party withholding discovery not be heard to object to introduction and use of secondary evidence to show what the withheld admission, testimony documents, or other evidence would have shown;

(f) Order that a pleading, or part of a pleading, or a motion or other submission by the party, concerning which the order was issued, be stricken, or that decision on the pleadings be rendered against the party, or both; and

(g) Exclude the party or representative from proceedings, in accordance with § 511.42(b).

Any such action may be taken by order at any point in the proceedings.

#### **§ 511.38 Subpenas.**

(a) *Availability.* A subpoena shall be addressed to any party or any person not a party for the purpose of compelling attendance, testimony and production of documents at a hearing or oral examination.

(b) *Form.* A subpoena shall identify the action with which it is connected; shall specify the person to whom it is addressed and the date, time and place for compliance with its provisions; and shall be issued by order of the Presiding Officer and signed by the Executive Secretary or by the Presiding Officer. A subpoena *duces tecum* shall specify the books, papers, documents, or other materials or data-compilation to be produced.

(c) *How obtained—(1) Content of application.* An application for the issuance of a subpoena stating reasons shall be submitted in triplicate to the Presiding Officer.

(2) *Procedure of application.* The original and two copies of the subpoena, marked "original," "duplicate" and "triplicate," shall accompany the application. The Presiding Officer shall rule upon an application for a subpoena *ex parte*, by issuing the subpoena or by issuing an order denying the application.

(d) *Issuance of a subpoena.* The Presiding Officer shall issue a subpoena by signing and dating, or ordering the Executive Secretary to sign and date, each copy in the lower right-hand corner of the document. The "duplicate" and "triplicate" copies of the subpoena shall be transmitted to the applicant for service in accordance with these Rules; the "original" copy shall be retained by or be forwarded to the Executive Secretary for retention in the docket of the proceeding.

(e) *Service of a subpoena.* A subpoena may be served in person or by certified mail, return receipt requested, as provided in § 511.16(b). Service shall be made by delivery of the signed "duplicate" copy to the person named therein.

(f) *Return of service.* A person serving a subpoena shall promptly execute a return of service, stating the date, time and manner of service, if service is effected by mail, the signed return receipt shall accompany the return of service. In case of failure to make service, a statement of the reasons for the failure shall be made. The "triplicate" of the subpoena, bearing or accompanied by the return of service, shall be returned forthwith to the Executive Secretary after service has been completed.

(g) *Motion to quash or limit subpoena.* Within five (5) days of receipt of a subpoena, the person against whom it is directed may file with the Presiding Officer a motion to quash, modify, or limit the subpoena, setting forth the reasons why the subpoena should be withdrawn or why it should be modified or limited in scope. Any such motion shall be answered within five (5) days of service, and shall be ruled on immediately thereafter. The order shall specify the date, if any, for compliance with the specifications of the subpoena and the reasons for the decision.

(h) *Consequences of failure to comply.* In the event of failure to comply with a subpoena, the Presiding Officer may take any of the actions enumerated in § 511.37 or may order any other appropriate relief to compensate for the withheld testimony, documents, or other materials. If in the opinion of the Presiding Officer such relief is insufficient, the Presiding Officer shall certify to the Administrator a request for judicial enforcement of the subpoena.

## **§ 511.39 Orders requiring witnesses to testify or provide other information and granting immunity.**

(a) A party who desires the issuance of an order requiring a witness to testify or provide other information upon being granted immunity from prosecution under title 18, United States Code, section 6002, may make a motion to that effect. The motion shall be made and ruled on in accordance with § 511.22, and shall include a showing:

(1) That the testimony or other information sought from a witness or prospective witness may be necessary to the public interest; and

(2) That such individual has refused or is likely to refuse to testify or provide such information on the basis of that individual's privilege against self-incrimination.

(b) If the Presiding Officer determines that the witness' testimony appears necessary and that the privilege against self-incrimination may be invoked, he or she may certify to the Administrator a request that he or she obtain the approval of the Attorney General of the United States for the issuance of an order granting immunity.

(c) Upon application to and approval of the Attorney General of the United States, and after the witness has invoked the privilege against self-incrimination, the Presiding Officer shall issue the order granting immunity unless he or she determines that the privilege was improperly invoked.

(d) Failure of a witness to testify after a grant of immunity or after a denial of the issuance of an order granting immunity shall result in the imposition of appropriate sanctions as provided in § 511.37.

## **Subpart E—Hearings**

### **§ 511.41 General rules.**

(a) *Public hearings.* All hearings pursuant to this Part shall be public unless otherwise ordered by the Presiding Officer. Notice of the time and location of the hearing shall be served on each party and participant, and published in the *Federal Register*.

(b) *Expedition.* Hearings shall proceed with all reasonable speed, and insofar as practicable and with due regard to the convenience of the parties and shall continue without suspension until concluded, except in unusual circumstances.

(c) *Rights of parties.* Every party shall have the right of timely notice and all other rights essential to a fair hearing, including, but not limited to, the rights to present evidence, to conduct such cross-examination as may be necessary in the judgment of the Presiding Officer for a full and complete disclosure of the facts, and to be heard by objection, motion, brief, and argument.

(d) *Rights of participants.* Every participant shall have the right to make a written or oral statement of position, file proposed findings of fact, conclusions of law and a posthearing brief, in accordance with § 511.17(b).

(e) *Rights of witnesses.* Any person compelled to testify in a proceeding in response to a subpoena may be accompanied, represented, and advised by counsel or other representative, and may obtain a transcript of his or her testimony at no cost.

#### **§ 511.42 Powers and duties of Presiding Officer.**

(a) *General.* A Presiding Officer shall have the duty to conduct full, fair, and impartial hearings, to take appropriate action to avoid unnecessary delay in the disposition of proceedings, and to maintain order. He or she shall have all powers necessary to that end, including the following powers:

- (1) To administer oaths and affirmations;
- (2) To compel discovery and to impose appropriate sanctions for failure to make discovery;
- (3) To issue subpoenas;
- (4) To rule upon offers of proof and receive relevant and probative evidence;
- (5) To regulate the course of the hearings and the conduct of the parties and their representatives therein;
- (6) To hold conferences for simplification of the issues, settlement of the proceedings, or any other proper purposes;
- (7) To consider and rule, orally or in writing, upon all procedural and order motions appropriate in an adjudicative proceeding;

(8) To issue initial decisions, rulings, and orders, as appropriate;

(9) To certify questions to the Administrator for determination; and

(10) To take any action authorized in this Part or in conformance with the provisions of title 5, United States Code, sections 551 through 559.

(b) *Exclusion of parties by Presiding Officer.* A Presiding Officer shall have the authority, for good cause stated on the record, to exclude from participation in a proceeding any party, participant, and/or representative who shall violate requirements of § 511.76. Any party, participant and/or representative so excluded may appeal to the Administrator in accordance with the provisions of § 511.23. If the representative of a party or participant is excluded, the hearing shall be suspended for a reasonable time so that the party or participant may obtain another representative.

(c) *Substitution of Presiding Officer.* In the event of the substitution of a new Presiding Officer for the one originally designated, any motion predicated upon such substitution shall be made within five (5) days of the substitution.

(d) *Interference.* In the performance of adjudicative functions, a Presiding Officer shall not be responsible to or subject to the supervision or direction of the Administrator or of any officer, employee, or agent engaged in the performance of investigative or prosecuting functions for NHTSA. All directions by the Administrator to a Presiding Officer concerning any adjudicative proceeding shall appear on and be made a part of the record.

(e) *Disqualification of Presiding Officer.* (1) When a Presiding Officer deems himself or herself disqualified to preside in a particular proceeding, he or she shall withdraw by notice on the record and shall notify the Director of the Office of Administrative Law Judges and the Executive Secretary of the withdrawal.

(2) Whenever, for any reason, any party shall deem the Presiding Officer to be disqualified to preside, or to continue to preside, in a particular proceeding, that party may file with the Executive Secretary a motion to disqualify and remove, supported by affidavit(s) setting forth the alleged grounds for disqualification. A copy of the motion and supporting affidavit(s)

shall be served by the Executive Secretary on the Presiding Officer whose removal is sought. The Presiding Officer shall have ten (10) days from service to reply in writing. Such motion shall not stay the proceeding unless otherwise ordered by the Presiding Officer or the Administrator. If the Presiding Officer does not disqualify himself or herself, the Administrator will determine the validity of the grounds alleged, either directly or on the report of another Presiding Officer appointed to conduct a hearing for that purpose, and shall in the event of disqualification take appropriate action, by assigning another Presiding Officer or requesting loan of another Administrative Law Judge through the Office of Personnel Management.

#### **§ 511.43 Evidence.**

(a) *Applicability of Federal Rules of Evidence.* The Federal Rules of Evidence shall apply to proceedings held under this part only as a general guide. The Presiding Officer may admit any relevant and probative evidence.

(b) *Burden of proof.* (1) Complaint counsel shall have the burden of sustaining the allegations of any complaint.

(2) Any party who is the proponent of a legal and/or factual proposition shall have the burden of sustaining the proposition.

(c) *Presumptions.* A presumption imposes on the party against whom it is directed the burden of going forward with evidence to rebut or meet the presumption, but does not shift to such party the burden of proof in the sense of the risk of nonpersuasion, which remains throughout the hearing upon the party on whom it was originally cast.

(d) *Admissibility.* All relevant and reliable evidence is admissible, but may be excluded if its probative value is substantially outweighed by unfair prejudice or by considerations of undue delay, waste of time, immateriality, or needless presentation of cumulative evidence.

(e) *Official notice*—(1) *Definition.* Official notice means use by the Presiding Officer of extrarecord facts and local conclusions drawn from those facts. An officially noticed fact or legal conclusion must be one not subject to reasonable dispute in that it is either (i) generally known

within the jurisdiction of the Presiding Officer or (ii) known by the Presiding Officer in areas of his or her expertise; or (iii) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.

(2) *Method of taking official notice.* The Presiding Officer may at any time take official notice upon motion of any party or upon its own initiative. The record shall reflect the facts and conclusions which have been officially noticed.

(3) *Opportunity to challenge.* Any party may upon application in writing rebut officially noticed facts and conclusions by supplementing the record. The Presiding Officer shall determine the permissible extent of this challenge; that is, whether to limit the party to presentation of written materials, whether to allow presentation of testimony, whether to allow cross-examination, or whether to allow oral argument. The Presiding Officer shall grant or deny the application on the record.

(f) *Objections and exceptions.* Objections to evidence shall be timely interposed, shall appear on the record, and shall contain the grounds upon which they are based. Rulings on all objections, and the bases therefore, shall appear on the record. Formal exception to an adverse ruling is not required to preserve the question for appeal.

(g) *Offer of proof.* When an objection to proffered testimony or documentary evidence is sustained, the sponsoring party may make a specific offer, either in writing or orally, of what the party expects to prove by the testimony or the document. When an offer of proof is made, any other party may make a specific offer, either in writing or orally, of what the party expects to present to rebut or contradict the offer of proof. Written offers of proof or of rebuttal, adequately marked for identification, shall accompany the record and be available for consideration by any reviewing authority.

#### **§ 511.44 Expert witnesses.**

(a) *Definition.* An expert witness is one who, by reason of education, training, experience, or profession, has peculiar knowledge concerning the matter of science or skill to which his or her testimony relates and from which he or she may draw inferences based upon hypothetically stated facts or from facts involving scientific or technical knowledge.



(b) *Method of presenting testimony of expert witness.* Except as may be otherwise ordered by the Presiding Officer, a detailed written statement of the elements of the direct testimony of an expert witness shall be filed on the record and exchanged between the parties no later than 10 days preceding the commencement of the hearing. The statement must contain a full explanation of the methodology underlying any analysis, and a full disclosure of the basis of any opinion. The direct testimony of an expert witness shall not include points not contained in the written statement. A party may waive direct examination of an expert witness by indicating that the written statement be considered the testimony of the witness. In such a case, the written testimony shall be incorporated into the record and shall constitute the testimony of the witness.

(c) *Cross-examination and redirect examination of expert witness.* Cross-examination, redirect examination, and re-cross-examination of an expert witness will proceed in due course based upon the written testimony and any amplifying oral testimony.

(d) *Failure to file and/or to exchange written statement.* Failure to file and/or to exchange the written statement of an expert witness as provided in this section shall deprive the sponsoring party of the use of the expert witness and of the conclusions which that witness would have presented.

#### § 511.45 In camera materials.

(a) *Definition.* *In camera* materials are documents, testimony, or other data which by order of the Presiding Officer or the Administrator, as appropriate under this Part, are kept confidential and excluded from the public record. Only materials exempt under the Freedom of Information Act may be kept confidential and excluded from the public record. Pursuant to 49 CFR Part 512, the Chief Counsel of the NHTSA is responsible for determining whether an alleged confidential business record is exempt from the Freedom of Information Act. The right of the Presiding Officer, the Administrator and reviewing courts to order disclosure of *in camera* materials is specifically reserved.

(b) *In Camera Treatment of documents and testimony.* The Presiding Officer or the Administrator, as appropriate under this part, shall have authority, when good cause is found on the record, to order documents or testimony offered in evidence, whether admitted or rejected, to be received and preserved *in camera*. The order shall specify the length of time for *in camera* treatment and shall include:

(1) A description of the documents and/or testimony;

(2) The reasons for granting *in camera* treatment for the specified length of time.

(c) *Access and disclosure to parties.* (1) The Administrator and Presiding Officer, and their immediate advisory staffs shall have complete access to all *in camera* materials. All other parties shall also have complete access to all *in camera* materials, except that these parties may seek access only in accordance with paragraph (c)(2) of this section when:

(i) The *in camera* materials consist of information obtained by the government from persons not parties to the proceeding; or

(ii) The *in camera* materials consist of information provided by one of the parties to the proceeding which is confidential as to the other parties to the proceeding.

(2) Any party desiring access to and/or disclosure of the *in camera* materials specified in paragraph (c)(1) (i) and (ii) of this section for the preparation and presentation of that party's case shall make a motion which sets forth the justification therefore. The Presiding Officer or the Administrator, as appropriate under this part, may grant such motion on the record for substantial good cause shown and shall enter a protective order prohibiting unnecessary disclosure and requiring other necessary safeguards. The Presiding Officer or the Administrator, as appropriate, may examine the *in camera* materials and excise portions thereof before disclosing the materials to the moving party.

(d) *Segregation of in camera materials.* *In camera* materials shall be segregated from the public record and protected from public view.

(e) *Public release of in camera materials.* *In Camera* materials constitute a part of the confidential records of the NHTSA and shall not be released to the public until the expiration of *in camera* treatment.

(f) *Reference to in camera materials.* In the submission of proposed findings, conclusions, briefs, or other documents, all parties shall refrain from disclosing specific details of *in camera* materials. Such refraining shall not preclude general references to such materials. To the extent that parties consider it necessary to include specific details of *in camera* materials, the references shall be incorporated into separate proposed findings, briefs, or other documents marked "CONFIDENTIAL, CONTAINS IN CAMERA MATERIAL," which shall be placed *in camera* and become part of the *in camera* record. These documents shall be served only on parties accorded access to the *in camera* materials in accordance with paragraph (c)(2) of this section.

#### **§ 511.46 Proposed findings, conclusions, and order.**

Within a reasonable time after the closing of the record and receipt of the transcript, all parties and participants may, simultaneously, file post-hearing briefs, including proposed findings of facts, conclusions of law and a proposed order, together with reasons therefore. The Presiding Officer shall establish a date certain for the filing of the briefs, which shall not exceed 45 days after the close of the record except in unusual circumstances. The briefs shall be in writing, shall be served upon all parties, and shall contain adequate references to the record and authorities relied on. Replies shall be filed within fifteen (15) days of the date for the filing of briefs unless otherwise established by the Presiding Officer. The parties and participants may waive either or both submissions.

#### **§ 511.47 Record.**

(a) *Reporting and transcription.* Hearings shall be recorded and transcribed under the supervision of the Presiding Officer by a reporter appointed by the Administrator. The original transcript shall be a part of the record and the official transcript. Copies of transcripts are available from the reporter at a cost not to exceed the maximum rates fixed by contract between the NHTSA and the reporter.

(b) *Corrections.* Corrections of the official transcript may be made only when they involve errors affecting substance and then only in the manner herein provided. The Presiding Officer may order corrections, either on his or her own

motion or on motion of any party. The Presiding Officer shall determine the corrections to be made and so order. Corrections shall be interlineated or otherwise inserted in the official transcript so as not to obliterate the original text.

#### **§ 511.48 Official docket.**

(a) The official docket in adjudicatory proceedings will be maintained in the Docket Section, Room 5108, 400 Seventh Street S.W., Washington, D.C. and will be available for public inspection during normal working hours (7:45 a.m.-4:15 p.m.) Monday through Friday.

(b) Fees for production or disclosure of records contained in the official docket shall be levied as prescribed in the NHTSA's Procedures for Disclosure or Production of Information under the Freedom of Information Act.

#### **§ 511.49 Fees.**

(a) *Witnesses.* Any person compelled to appear in person in response to a subpoena or notice of oral examination shall be paid at least the same attendance and mileage fees as are paid witnesses in the courts of the United States, in accordance with Title 28, United States Code, Section 1821.

(b) *Responsibility.* The fees and mileage referred to in this section shall be paid by the party at whose instance witnesses appear.

### **Subpart F—Decision**

#### **§ 511.51 Initial decision.**

(a) *When filed.* The Presiding Officer shall endeavor to file an Initial Decision with the Administrator within sixty (60) days of the close of the record, the filing of post-hearing briefs, or the filing of replies thereto, whichever is latest.

(b) *Content.* The Initial Decision shall be based upon a consideration of the entire record and it shall be supported by reliable, probative, and substantial evidence. It shall include:

(1) Findings and conclusions, as well as the reasons or bases therefore, upon the material questions of fact, material issues of law, or discretion presented on the record, and should, where practicable, be accompanied by specific page citations to the record and to legal and other materials relied upon.

(2) An appropriate order.

(c) *By whom made.* The Initial Decision shall be made and filed by the Presiding Officer who presided over the hearing, unless otherwise ordered by the Administrator.

(d) *Reopening of proceeding by presiding officer; termination of jurisdiction.* (1) At any time prior to or concomitant with the filing of the Initial Decision, the Presiding Officer may reopen the proceedings for the reception of further evidence.

(2) Except for the correction of clerical errors, the jurisdiction of the Presiding Officer is terminated upon the filing of the Initial Decision, unless and until the proceeding is remanded to the Presiding Officer by the Administrator.

#### **§ 511.52 Adoption of initial decision.**

The Initial Decision and Order shall become the Final Decision and Order of the Administrator forty (40) days after issuance unless an appeal is noted and perfected or unless review is ordered by the Administrator. Upon the expiration of the fortieth day, the Executive Secretary shall prepare, sign and enter an order adopting the Initial Decision and Order.

#### **§ 511.53 Appeal from initial decision.**

(a) *Who may file notice of intention.* Any party may appeal an Initial Decision to the Administrator provided that within ten (10) days after issuance of the Initial Decision such party files and serves a notice of intention to appeal.

(b) *Appeal brief.* The appeal shall be in the form of a brief, filed within forty (40) days after service of the Initial Decision, duly served upon all parties and participants. The appeal brief shall contain, in the order indicated, the following:

(1) A subject index of the matters in the brief, with page references, and a table of cases (alphabetically arranged), textbooks, statutes, and other material cited, with page references thereto;

(2) A concise statement of the case;

(3) A specification of the position urged;

(4) The arguments, presenting clearly the points of fact and law relied upon in support of the position on each question, with specific page references to the record and the legal or other material relied upon; and

(5) A proposed form of order for the Administrator's consideration in lieu of the order contained in the Initial Decision.

(c) *Answering brief.* Within thirty (30) days after service of the appeal brief upon all parties and participants, any party may file an answering brief which shall also contain a subject index, with page references, and a table of cases (alphabetically arranged), textbooks, statutes, and other material cited, with page references thereto. Such brief shall present clearly the points of fact and law relied upon in support of the position taken on each question, with specific page references to the record and legal or other material relied upon.

(d) *Participant's brief.* Within thirty (30) days after service of the appeal brief upon all parties and participants, any participant may file an appeal brief which should contain a subject index, with page references, and a table of authorities being relied upon. Such brief shall present clearly the position taken by the participant on each question raised by the appellant(s).

(e) *Cross appeal.* If a timely notice of appeal is filed by a party, any other party may file a notice of cross-appeal within ten (10) days of the date on which the first notice of appeal was filed. Cross-appeals shall be included in the answering brief and shall conform to the requirements for forms, content and filing specified in paragraph (c) of this section. If an appeal is noticed but not perfected, no cross-appeal shall be permitted and notice of cross-appeal shall be deemed void.

(f) *Reply brief.* A reply brief shall be limited to rebuttal of matters in answering briefs, including matters raised in cross-appeals. A reply brief shall be filed and within fourteen (14) days after service of an answering brief, or on the day preceding the oral argument, whichever comes first.

(g) *Oral argument.* The purpose of an oral argument is to emphasize and clarify the issues. Any party may request oral argument. The Administrator may order oral argument upon request or upon his or her own initiative. All oral arguments shall be reported and transcribed.

#### **§ 511.54 Review of initial decision in absence of appeal.**

The Administrator may, by order, review a case not otherwise appealed by a party. Thereupon the parties shall and participants may file briefs in accordance with § 511.53(b), (c), (d), (e), and (f) except that the Administrator may, in his or her discretion,

establish a different briefing schedule in his or her order. Any such order shall issue within forty (40) days of issuance of the Initial Decision. The order shall set forth the issues which the Administrator will review.

**§ 511.55 Final decision on appeal or review.**

(a) Upon appeal from or review of an Initial Decision, the Administrator shall consider such parts of the record as are cited or as may be necessary to resolve the issues presented and, in addition, shall, to the extent necessary or desirable, exercise all the powers which it could have exercised if he or she had made the Initial Decision.

(b) In rendering his or her decision, the Administrator shall adopt, modify, or set aside the findings, conclusions, and order contained in the Initial Decision, and shall include in his or her Final Decision a statement of the reasons or bases for his or her action. The Administrator shall issue an order reflecting his or her Final Decision.

**§ 511.56 Reconsideration.**

Within twenty (20) days after issuance of a Final Decision and Order, any party may file with the Administrator a petition for reconsideration of such decision or order, setting forth the relief desired and the grounds in support thereof. Any party desiring to oppose such a petition shall file an answer thereto within ten (10) days after service of the petition. The filing of a petition for reconsideration shall not stay the effective date of the Decision and Order or toll the running of any statutory time period affecting the decision or order unless specifically so ordered by the Administrator.

**§ 511.57 Effective date of order.**

(a) *Consent orders.* An order which has been issued following acceptance of an offer of settlement in accordance with § 511.26 becomes effective upon issuance.

(b) *Litigated orders.* All other orders become effective upon the expiration of the statutory period for court review specified in Section 508(c)(1) of the Motor Vehicle Information and Cost Savings Act, Title 15, United States Code Section 2008(c)(1), Pub. L. 94-163, 89 Stat. 911, or, if a petition for review has been filed, upon court affirmance of the Administrator's order.

## **Subpart G—Settlement Procedure in Cases of Violation of Average Fuel Economy Standards**

**§ 511.61 Purpose.**

This subpart establishes the procedures and requirements necessary to obtain a settlement of a case of violation of section 507 (1) and (2) of the Motor Vehicle Information and Cost Savings Act, as amended, Pub. L. 94-163, 89 Stat. 911 (15 U.S.C. Section 2007(1)(2)). No settlement of such cases may be had except as in accordance with this subpart.

**§ 511.62 Definitions.**

"Average fuel economy standard" means an average fuel economy standard established by or pursuant to the Motor Vehicle Information and Cost Savings Act.

"Insolvency" means the inability to meet expenses when due.

"Settlement" means a compromise, modification, or remission of a civil penalty assessed under this Part for a violation of an average fuel economy standard.

**§ 511.63 Criteria for settlement.**

Settlement of a case of violation of an average fuel economy standard is discretionary with the Administrator. The Administrator will consider settlement only to the extent—

(a) Necessary to prevent the insolvency or bankruptcy of the person seeking settlement, or

(b) That the violation of the average fuel economy standard resulted, as shown by the person seeking settlement, from an act of God, a strike, or fire, or

(c) That modification of a civil penalty assessed under this part is necessary to prevent lessening of competition, as determined and as certified by the Federal Trade Commission under section 508(b)(4) of the Motor Vehicle Information and Cost Savings Act, Pub. L. 94-163, 89 Stat. 911 (15 U.S.C. sec. 2008(b)(4)).

**§ Petitions for settlement; timing, contents.**

(a) A petition seeking settlement under this subpart must be filed within 30 days after the issuance of a final order assessing a civil penalty for a violation of an average fuel economy standard.

(b)(1) A petition for settlement should be sufficient to allow the Administrator to determine that at least one of the criteria set out in § 511.63 is satisfied, and that the public interest would be served by settlement.

(2) A petition asserting that settlement is necessary to prevent bankruptcy or insolvency must include:

(i) Copies of all pertinent financial records, auditors reports, and documents that show that the imposition of a civil penalty would cause insolvency, or would cause a company to do an act of bankruptcy, and

(ii) A payment schedule that would allow the petitioner to pay a civil penalty without resulting in insolvency or an act of bankruptcy.

(3) A petition asserting that the violation of the average fuel economy standard was caused by an act of God, fire, or strike must describe corrective and ameliorative steps taken to mitigate the effects of the act of God, fire, or strike.

(4) A petition based on a certification by the Federal Trade Commission that modification of the civil penalty assessed is necessary to prevent a substantial lessening of competition must include a certified copy of:

(i) The application to the Federal Trade Commission for a certification under section 508(b)(4) of the Motor Vehicle Information and Cost Savings Act, Pub. L. 94-163, 89 Stat. 911 (15 U.S.C. Sec. 2008(b)(4)), and materials supporting the application.

(ii) The administrative record of any Federal Trade Commission proceeding held in regard to the application, and

(iii) The certification by the Federal Trade Commission.

(c) It is the policy of the National Highway Traffic Safety Administration that unconditional settlements of violations of average fuel economy standards are not in the public interest, and absent special and extraordinary circumstances, will not be allowed. All petitions for settlement shall contain a section proposing conditions for settlement. Conditions for settlement can be specific acts designed to lead to the reduction of automotive fuel consumption, which the petitioner is not otherwise required to perform pursuant to any statute,

regulation, or administrative or judicial order, such as sponsoring public education programs, advertising, accelerating commercial application of technology, accelerating technology development programs, or making public the results of privately performed studies, surveys, or research activities.

#### **§ 511.65 Public comment.**

Notice and opportunity for comment are provided to the public in regard to settlements under this part. Subject to § 511.66, notice of receipt of a petition for settlement is published in the *Federal Register*, and a copy of such petitions and any supporting information is placed in a public docket. Any settlement agreed to by the Administrator shall be placed in the public docket for 30 days so that interested persons may comment thereon. No settlement is binding until the completion of that thirty day period.

#### **§ 511.66 Confidential business information.**

The Administrator shall have authority to segregate from the public docket and to protect from public view information in support of a petition for settlement which has been determined to be confidential business information. The provisions of 15 U.S.C. 2005(d) pertaining to discretionary release by the Administrator of and to limited disclosure of information determined to be confidential business information shall apply to this section.

#### **§ 511.67 Settlement order.**

If, in accordance with this subpart, the Administrator allows a settlement of a case of violation of an average fuel economy standard, an order of settlement shall be issued, setting out the terms of the settlement, and containing a brief discussion of the factors underlying the exercise of the Administrator's discretion in allowing the settlement, including a discussion of comments received under § 511.65. If the Administrator rejects a petition for settlement, the Executive Secretary shall give written notice of the rejection and the reasons for the rejection to the parties and the Presiding Officer.

## **Subpart H—Appearances; Standards of Conduct**

### **§ 511.71 Who may make appearances.**

A party or participant may appear in person, or by a duly authorized officer, partner, regular employee, or other agent of this party or participant, or by or with counsel or other duly qualified representative, in any proceeding under the part.

### **§ 511.72 Authority for representation.**

Any individual acting in a representative capacity in any adjudicative proceeding may be required by the Presiding Officer or the Administrator to show his or her authority to act in such capacity. A regular employee of a party who appears on behalf of the party shall be required by the Presiding Officer or the Administrator to show his or her authority to so appear.

### **§ 511.73 Written appearances.**

(a) Any person who appears in a proceeding shall file a written notice of appearance with the Executive Secretary or deliver a written notice of appearance to the reporter at the hearing, stating for whom the appearance is made and the name, address, and telephone number (including area code) of the person making the appearance and the date of the commencement of the appearance. The written appearance shall be made a part of the record.

(b) Any person who has previously appeared in a proceeding may withdraw his or her appearance by filing a written notice of withdrawal of appearance with the Executive Secretary. The notice of withdrawal of appearance shall state the name, address, and telephone number (including area code) of the person withdrawing the appearance, for whom the appearance was made, and the effective date of the withdrawal of the appearance, and such notice of withdrawal shall be filed within five (5) days of the effective date of the withdrawal of the appearance.

### **§ 511.74 Attorneys.**

An attorney at law who is admitted to practice before the Federal courts or before the highest court of any State, the District of Columbia, or any territory or Commonwealth of the United States, may practice before the NHTSA. An attorney's

own representation that he or she is in good standing before any of such courts shall be sufficient proof thereof, unless otherwise ordered by the Presiding Officer or the Administrator.

### **§ 511.75 Persons not attorneys.**

(a) Any person who is not an attorney at law may be admitted to appear in an adjudicative proceeding if that person files proof to the satisfaction of the Presiding Officer that he or she possesses the necessary legal, technical, or other qualifications to render valuable service in the proceeding and is otherwise competent to advise and assist in the proceedings. An application by a person not an attorney at law for admission to appear in a proceeding shall be submitted in writing to the Executive Secretary, not later than thirty (30) days prior to the hearing in the proceedings. The application shall set forth in detail the applicant's qualifications to appear in the proceedings.

(b) No person who is not an attorney at law and whose application has not been approved shall be permitted to appear in the Administration's proceedings. However, this provision shall not apply to any person who appears before the NHTSA on his or her own behalf or on behalf of any corporation, partnership, or association of which the person is a partner, officer, or regular employee.

### **§ 511.76 Qualifications and standards of conduct.**

(a) The NHTSA expects all persons appearing in proceedings before it to act with integrity, with respect, and in an ethical manner. Business transacted before and with the NHTSA shall be in good faith.

(b) To maintain orderly proceedings, the Presiding Officer or the Administrator, as appropriate under this part, may exclude parties, participants, and their representatives for refusal to comply with directions, continued use of dilatory tactics, refusal to adhere to reasonable standards of orderly and ethical conduct, failure to act in good faith, or violation of the prohibition against certain ex parte communications. The Presiding Officer may, in addition to the above sanctions, deny access to additional *in camera* materials when a party or participant publicly releases such materials without authorization.

(c) An excluded party, participant, or representative thereof may petition the Administrator to entertain an interlocutory appeal in accordance with § 511.24. If, after such appeal, the representative of a party or participant, is excluded, the hearing shall, at the request of the party or participant, be suspended for a reasonable time so that the party or participant may obtain another representative.

**§ 511.77 Restrictions as to former members and employees.**

The postemployee restrictions applicable to former Administrators and NHTSA employees, as set forth in 18 U.S.C. 207, shall govern the activities of former Administrators and NHTSA employees in matters connected with their former duties and responsibilities.

**§ 511.78 Prohibited communications.**

(a) *Applicability.* This section is applicable during the period commencing with the date of issuance of a complaint and ending upon final NHTSA action in the matter.

(b) *Definitions.* (1) "Decision-maker" means those NHTSA personnel who render decisions in adjudicative proceedings under this part, or who advise officials who render such decisions, including:

(i) The Administrator,

(ii) The Administrative Law Judges;

(2) "Ex parte communications" means:

(i) Any written communication other than a request for a status report on the proceeding made to a decisionmaker by any person other than a decisionmaker which is not served on all parties.

(ii) Any oral communication other than a request for a status report on the proceeding made to a decisionmaker by any person other than a decisionmaker without advance notice to the parties to the proceeding and opportunity for them to be present.

(c) *Prohibited ex parte communications.* Any oral or written ex parte communication relative to the merits of a proceeding under this part is a prohibited ex parte communication, except as provided in paragraph (d) of this section.

(d) *Permissible ex parte communications.* The following communications shall not be prohibited under this section:

(1) Ex parte communications authorized by statute or by this part.

(2) Any staff communication concerning judicial review or judicial enforcement in any matter pending before or decided by the Administrator.

(e) *Procedures for handling prohibited ex parte communication.* (1) Prohibited written ex parte communication. To the extent possible, a prohibited written ex parte communication received by any NHTSA employee shall be forwarded to the Executive Secretary rather than to a decisionmaker. A prohibited written ex parte communication which reaches a decisionmaker shall be forwarded by the decisionmaker to the Executive Secretary. If the circumstances in which a prohibited ex parte written communication was made are not apparent from the communication itself, a statement describing those circumstances shall be forwarded with the communication.

(2) Prohibited oral ex parte communication.

(i) If a prohibited oral ex parte communication is made to a decisionmaker, he or she shall advise the person making the communication that the communication is prohibited and shall terminate the discussion.

(ii) In the event of a prohibited oral ex parte communication, the decisionmaker shall forward to the Executive Secretary a dated statement containing such of the following information as is known to him/her:

(A) The title and docket number of the proceeding;

(B) The name and address of the person making the communication and his/her relationship (if any) to the parties to the proceeding;

(C) The date and time of the communication, its duration, and the circumstances (telephone call, personal interview, etc.) under which it was made;

(D) A brief statement of the substance of the matters discussed;

(E) Whether the person making the communication persisted in doing so after being advised that the communication was prohibited.

(3) *Filing.* All communications and statements forwarded to the Executive Secretary under this section shall be placed in a public file which shall be associated with, but not made a part of, the record of the proceedings, to which the communication or statement pertains.

(4) *Service on parties.* The Executive Secretary shall serve a copy of each communication and statement forwarded under this section on all parties to the proceedings. However, if the parties are numerous, or if other circumstances satisfy the Executive Secretary that service of the communication or statement would be unduly burdensome, he or she may, in lieu of service, notify all parties in writing that the communication or statement has been made and filed and that it is available for inspection and copying.

(5) *Service on maker.* The Executive Secretary shall forward to the person who made the prohibited ex parte communication a copy of each communication and/or statement filed under this section.

(f) *Effect of ex parte communications.* No prohibited ex parte communication shall be considered as part of the record for decision unless introduced into evidence by a party to the proceedings.

(g) *Sanctions.* A party or participant who makes a prohibited ex parte communication, or who encourages or solicits another to make any such communication, may be subject to any appropriate sanction or sanctions, including but not limited to, exclusion from the proceeding and adverse rulings on the issues which are the subject of the prohibited communication.



## APPENDIX I—Final Prehearing Order

### Case Caption

#### *Final Prehearing Order*

A prehearing conference was held in this matter pursuant to Rule 21 of the Administration's Rules of Practice for Adjudicative Proceedings, on the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, at \_\_\_\_\_ o'clock —M.

Counsel appeared as follows:

For the Administration staff:

For the Respondent(s):

Others:

#### 1. NATURE OF ACTION AND JURISDICTION.

This is an action for \_\_\_\_\_

and the jurisdiction of the Administration is involved under Section \_\_\_\_\_ of Title \_\_\_\_\_. U.S.C. The jurisdiction of the Administration is (not) disputed. The questions of jurisdiction was decided as follows:

#### 2. STIPULATIONS AND STATEMENTS.

The following stipulations and statements were submitted, attached to, and made a part of this order:

(a) A comprehensive written stipulation or statement of all uncontested facts;

(b) A concise summary of the ultimate facts as claimed by each party. (Complaint Counsel must set forth the claimed facts, specifically; for example, if violation is claimed, Complaint Counsel must assert specifically the acts of violation complained of; each respondent must reply with equal clarity and detail.)

(c) Written stipulations or statements setting forth the qualifications of the expert witnesses to be called by each party;

(d) A written list or lists of the witnesses whom each party will call, a written list or lists of the additional witnesses whom each party *may* call, and a statement of the subject on which each witness will testify;

(e) An agreed statement of the contested issues of fact and of law, and/or separate statements by each party or any contested issues of fact and law not agreed to;

(f) A list of all depositions to be read into evidence and statements of any objections thereto;

(g) A list and brief description of any charts, graphs, models, schematic diagrams, and similar objects that will be used in opening statements or closing arguments, but will not be offered in evidence. If any other such objects are to be used by any party, they will be submitted to opposing counsel at least three days prior to hearing. If there is then any objection to their use, the dispute will be submitted to the Presiding Officer at least one day prior to hearing;

(h) Written waivers of claims or defenses which have been abandoned by the parties.

The foregoing were modified, at the pretrial conference as follows:

(To be completed at the conference itself. If none, recite "none")

#### 3. COMPLAINT COUNSEL'S EVIDENCE.

3.1 The following exhibits were offered by Complaint Counsel, received in evidence, and marked as follows:

(Identification number and brief description of each exhibit)

The authenticity of these exhibits has been stipulated.

3.2 The following exhibits were offered by the Complaint Counsel and marked for identification. There was reserved to the respondent(s) and party intervenors, if any, the right to object to their receipt in evidence on the grounds stated:

(Identification number and brief description of each exhibit. State briefly ground of objection, e.g., competency, relevancy, materiality)

#### 4. RESPONDENT'S EVIDENCE.

4.1 The following exhibits were offered by the respondent(s), received in evidence, and marked as herein indicated:

(Identification number and brief description of each exhibit)

The authenticity of these exhibits has been stipulated.

4.2 The following exhibits were offered by the respondent(s) and marked for identification. There was reserved to Complaint Counsel and party intervenors, if any, the right to object to their receipt in evidence on the grounds stated:

(Identification number and brief description of each exhibit. State briefly ground of objection, e.g., competency, relevancy, materiality)

#### 5. ADDITIONAL ACTIONS.

The following additional action was taken:

(Amendments to pleadings, agreements of the parties, disposition of motions, separation of issues of liability and remedy, etc., if necessary)

#### 6. LIMITATIONS AND RESERVATIONS.

6.1 Each of the parties has the right to further supplement the list of witnesses not later than ten (10) days prior to trial by furnishing opposing counsel with the name and address of the witness and general subject matter of his or her testimony and filing a supplement to this pretrial order. Thereafter additional witnesses may be added only after application to the Presiding Officer, for good cause shown.

6.2 Rebuttal witnesses not listed in the exhibits to this order may be called only if the necessity of their testimony could not reasonably be foreseen ten (10) days prior to trial. If it appears to counsel at any time before trial that such rebuttal witnesses will be called, notice will immediately be given to opposing counsel and the Presiding Officer.

6.3 The probable length of hearing is \_\_\_\_ days. The hearings will be commenced on the \_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, at \_\_\_\_\_ o'clock \_\_\_\_M. at (location) \_\_\_\_\_.

6.4 Prehearing briefs will be filed not later than 5:00 p.m. on \_\_\_\_\_ (Insert date not later than ten (10) days prior to hearing.) All anticipated legal questions, including those relating to the admissibility of evidence, must be covered by prehearing briefs.

This prehearing order has been formulated after a conference at which counsel for the respective parties appeared. Reasonable opportunity has been afforded counsel for corrections or additions prior to signing. It will control the course of the hearing, and it may not be amended except by consent of the parties and the Presiding Officer, or by order of the Presiding Officer to prevent manifest injustice.

\_\_\_\_\_  
(Presiding Officer's Name)

**45 F.R. 81574  
December 11, 1980**

## PREAMBLE TO AMENDMENT TO PART 512

### Confidential Business Information (Docket No. 78-10; Notice 3)

**ACTION:** Final rule.

**SUMMARY:** This notice establishes the procedures by which the National Highway Traffic Safety Administration (NHTSA) considers claims for the confidential treatment of business information. Proposed procedures were published May 25, 1978. This notice sets forth the procedures for asserting a claim for confidentiality and specifies the circumstances under which the agency may disclose information which is claimed to be confidential. The notice further establishes several presumptive class determinations relating to confidentiality. This notice clarifies and expedites the processing of confidentiality determinations and responds to the problems posed by the increasing number of confidentiality requests.

**DATE:** The regulation becomes effective April 9, 1981.

**FOR FURTHER INFORMATION CONTACT:**

Roger Tilton, Office of Chief Counsel,  
National Highway Traffic Safety  
Administration, 400 Seventh Street, S.W.,  
Washington, D.C. 20590, (202-426-9511)

**SUPPLEMENTARY INFORMATION:** The NHTSA has determined that the increasing number of requests for confidentiality necessitate the publication of the procedures under which the agency will determine the confidentiality of business information. This regulation responds to that need by making public procedures for submitting requests for confidential treatment of business information. The regulation also details the content of the submissions that are required to substantiate a confidentiality request. This regulation imposes requirements upon the submitters of the information and upon the agency to respond to those requests

in the time and manner established herein. Further, the regulation explains those limited instances in which confidential information will be released. Through this regulation, submitters of information will be better able to ensure that their confidentiality requests are properly substantiated, thus facilitating confidentiality determinations. This improvement of the existing handling of the requests will benefit both the agency and the submitter.

The notice proposing the confidential information regulation was published May 25, 1978 (43 FR 22412). In response to that notice, the agency received many comments from vehicle and equipment manufacturers, their representatives, and public interest groups.

#### General Comments

Several commenters objected to the provision in the confidentiality procedures requiring initial determinations relating to confidentiality to be made prior to an actual Freedom of Information Act (FOIA) request. These commenters alleged that the agency would be overburdened by the necessary review of material to ascertain its confidentiality when, in fact, the information might never be required to be released. Commenters pointed with approval to the confidentiality regulations of the Environmental Protection Agency (EPA) which allow the determination of confidentiality to be made at the time of an FOIA request (40 CFR 2.205). These same commenters also cited the Congressional Report of the Committee on Government Operations concerning FOIA requests (FOIA Report) (H. Rept. No. 95-1382) as discouraging advance determinations of confidentiality. In summation, it was suggested that the agency assume the confidentiality of information submitted to it, when a claim for confidentiality is concurrently submitted, until such time as release

of the information is requested or required for agency purposes.

The NHTSA disagrees with arguments indicating that the issuance of immediate determinations of confidentiality are burdensome and contrary to existing procedures in other agencies. In fact, the agency considers immediate determinations of confidentiality to be within accepted governmental practice and to be beneficial to both the submitter of the information and the agency. The commenters cited EPA regulations as indicative of a governmental reluctance toward the use of immediate determinations of confidentiality. However, the Securities and Exchange Commission (17 CFR 250.24b-2) and the Nuclear Regulatory Commission (10 CFR 2.790) both have procedures for the immediate determination of confidentiality. Therefore, government agencies have developed and are continuing to implement different approaches to the treatment of confidential information dependent upon the nature of the individual agency and its programs. The NHTSA considers the immediate determination approach to be, for the most part, the approach best suited to this agency given its function and need for information.

The submitter of confidential information will be aided by the policy of immediate determinations. A determination of confidentiality made upon receipt of information will automatically result in the protection of the confidential information. Confidential information will be clearly identified within the agency and will be accorded treatment designed to preserve its confidentiality. The agency believes that this should improve the ability of the NHTSA to maintain the confidentiality of information that merits such treatment. Without making an immediate determination, the agency might be deluged with information for which confidentiality determinations have been requested and which the submitter would have the NHTSA presume confidential. Such massive quantities of information are difficult to control and are more susceptible to accidental disclosure. The NHTSA is confident that the immediate determination procedure will reduce the amount of confidential information. With this more manageable amount of information, the agency can better ensure its protection.

The public is also benefited by immediate determinations of confidentiality. These determinations

result in immediate public access to information that is not confidential. The public should not be denied access to information that is "presumed confidential," but which is in fact not confidential.

Commenters citing the FOIA Report have misinterpreted the recommendations of that report as it pertains to the immediate determination of confidential information. The Report indicates that it is the opinion of the Committee that immediate determinations of confidentiality might not be the most efficient way to handle confidential information. However, the FOIA Report at page 38 withholds comment on any recommendation with respect to this aspect of confidentiality procedures. In reviewing the proposed regulations of the FTC, the Committee indicated their intention to await the outcome of those new regulations before reaching a definitive recommendation with respect to the issue.

The FOIA Report should also be considered in its proper perspective. This Report is the preliminary thinking of the Congressional Committee. As such, the agency considers it a useful tool in the development of confidentiality regulations. However, this report is very preliminary and some of its recommendations could change before legislation, if any, can be produced affecting the status of confidential information. Therefore, the agency cannot rely entirely upon the Committee statements in this report for the development of confidentiality regulations and must exercise its own judgment given the statutory mandates under which it operates.

The allegations that immediate review will overload the agency with unnecessary work are unfounded. There are compelling reasons for making determinations upon receipt of information beyond those mentioned above. For the most part, information is submitted to the agency in connection with rulemaking or investigations, or is submitted under a reporting requirement. With respect to information furnished pursuant to rulemaking, the Administrative Procedure Act (5 U.S.C. 101 *et seq.*) requires that informal rulemaking be conducted in the notice and comment format. To provide adequate information upon which comments can be based, the agency must make public the information upon which a decision is made unless that information comes under some confidentiality provision. Accordingly, rulemaking is facilitated by making confidentiality determina-

tions upon receipt of the information. This procedure has been used in the past, and this regulation merely incorporates an ongoing procedure. As such, it will not increase the workload of the agency.

Information submitted pursuant to an investigation or through required reports to the agency also can have confidential determinations made upon submission without overtaxing the resources of the agency. Information gathered pursuant to either of these devices is usually made public at some point. Accordingly, a confidentiality determination will be required at that time. This regulation merely requires that the determination be made upon receipt of the information.

The instances when immediate determinations are to be made were carefully selected on the basis of the eventual likelihood that the information would customarily be made public if not determined to be confidential. The agency concluded that it is received. Further, immediate determinations result in early public access to information that is rightfully in the public domain. Information that is not likely to be made public in the future will not have an immediate determination made concerning its confidentiality (§512.6(d)). Accordingly, the agency concludes that the comments indicating that the NHTSA will be overburdened by confidentiality determinations are without merit and that the agency will, in fact, be making approximately the same number of determinations as are made under existing practices.

The Freedom of Information Clearinghouse stated that they supported the regulation but indicated that they considered it necessary to review information again when a FOIA request is submitted to ensure that information previously determined to be confidential still falls within the parameters defining confidential information. The agency agrees that it will be necessary to briefly review the information at the time a FOIA request is submitted, but this review should be made significantly easier by the earlier confidentiality determination and would merely require updating a previous determination.

Several commenters disagreed with the NHTSA's policy relating to the use of confidential information. Volkswagen indicated that the agency's statutes require the agency to protect confidential information more than this regulation contemplates. Other commenters recommended

that the agency return confidential information when it is through with it and return all voluntarily submitted information if the agency determines that it is not confidential.

In response to Volkswagen's comments on the statutory protection of confidential information, the agency agrees that the statutes do provide protection for confidential business information. The agency has recognized that protection in this regulation and intends by this regulation to achieve that statutory mandate. The statutes also provide, however, for limited disclosure of confidential information when such disclosure is in the public interest. This regulation balances a submitter's interest in the confidentiality of its information with the public's need for the information. It should be remembered that the agency has historically had the right to make confidentiality determinations, and to release confidential information as allowed by the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1381 *et seq.*) and Titles I and V of the Motor Vehicle and Cost Savings Act (15 U.S.C. 1901 *et seq.*) (the Acts). The agency has exercised both of these rights in the past.

The NHTSA has not routinely released confidential information. Release has occurred only when the public interest so demanded. This policy is unchanged by this regulation. The NHTSA fully intends to honor the confidentiality of appropriate information unless circumstances compel its disclosure. In such disclosure instances, all efforts will be made to make disclosure in a manner to minimize any adverse effects while still serving the public interest. The commenters who suggested the return of confidential information after its use and the return of voluntarily submitted confidential information base this approach on the practices of some other agencies. The NHTSA considers it inappropriate to return information upon which agency decisions may have been based even if the agency is otherwise finished with that information. Agency decisions are subject to challenge and change as time passes, and frequently it is necessary to have all of the information upon which the initial decision was based either to support that decision or to aid in the justification of its change.

The suggested return of voluntarily submitted information that is determined not to be confidential presents another question. The NHTSA

realizes that some agencies, the EPA is one, return such voluntarily submitted information after an adverse confidentiality determination. The agency notes, however, that the FOIA Report was skeptical about the advisability of this practice. That Report indicated that denial of FOIA requests for this information during presubmission review may be illegal. The NHTSA is concerned about the potential legal problems involved with presubmission review and concludes that this approach is not appropriate for the NHTSA.

Several commenters indicated that the agency would be hindered in obtaining voluntary information if it refuses to return it when the agency determines that it is not confidential. The NHTSA disagrees. Information is voluntarily submitted frequently because the submitter has something to gain through its submission. For example, a submitter might be requesting an exemption from a requirement or might be attempting to alter rulemaking in its favor by its submission. The agency has always received such information even though the NHTSA has never returned it. The existing procedure had a negligible effect upon the ability of the agency to secure voluntary information. Moreover, the ability of the agency to secure much information through compulsory process acts as a final encouragement to the voluntary submission of information. Accordingly, the agency disagrees with arguments indicating that voluntarily submitted information should be returned to the submitter and will continue to retain this information.

Volkswagen indicated that the agency should consider the issuance of this regulation with the promulgation of the regulation on compulsory process. Their major argument was that the compulsory process regulation imposes very short time limits on the production of information pursuant to a subpoena or special order. The problems with a short response time, they argued, would be further exacerbated by requiring elaborate substantiation of confidentiality requests.

The agency acknowledges that its compulsory process devices are usually issued with a limited response time. Time limits may sometimes be short because the agency has an immediate need for information. The NHTSA concludes that there is sufficient time, however, to substantiate a confidentiality request. The amount of information required for that substantiation is significant, but

not overwhelming as some commenters have argued. The specific requirements for substantiating confidentiality requests are discussed later in this preamble. In establishing the reasonable time period for responding to compulsory process orders, the agency considers the amount of time necessary to substantiate confidentiality requests.

The Motor and Equipment Manufacturers Association (MEMA) commented that the agency had not done a sufficient analysis of the costs resulting from this regulation. The agency has considered the potential costs of the regulation and concluded that they are so minimal as not to warrant a full evaluation.

Several equipment manufacturers indicated that the regulation does not address the problems of the equipment manufacturer. They indicated, for example, that the regulation developed classes of information that are presumed confidential but that those classes applied only to vehicle manufacturers. It is true that the existing classes of presumed confidential information do not apply to equipment manufacturers. This does not mean that as time goes by that such classes will not be developed. It simply means that at this time the agency has insufficient information upon which to base specific classes applicable to equipment manufacturers. Equipment manufacturers, nonetheless, can avail themselves of the processes existing in the remainder of the rule for confidentiality determinations. Further, equipment manufacturers are free to suggest additional classes they regard to be appropriate.

In a final general comment, it was suggested that the agency wait until the outcome of the Supreme Court decision in *Chrysler Corp. v. Schlesinger*, 565 F.2d 1172 (3rd Cir. 1977), which was being argued this term. The Supreme Court decided the *Chrysler* case on April 18, 1979 (*Chrysler v. Brown*). That decision has little impact upon the procedures established by the regulation, and to the extent it does affect this regulation, it confirms the agency's positions.

#### **Information Supporting a Claim for Confidentiality**

Several commenters complained generally about the amount of information that the agency requires to be filed in support of a request for confidential treatment of information. These commenters argued that the NHTSA's requirements

go beyond the regulations of other agencies that require support for confidentiality requests and go beyond existing case law with respect to proving the confidentiality of information.

Suggestions were made that the NHTSA pattern its regulation after that of the U.S. International Trade Commission (USITC) (19 CFR 201.6(b)(3)). That regulation provides for the substantiation of confidentiality by specifying the provision of three pieces of information: (1) description of the confidential information, (2) justification for confidential treatment, and (3) a written certification under oath that the information is not available to the public. Although this regulation is less detailed than the NHTSA's, it essentially requires similar submissions. The NHTSA's regulation merely states in more detail the information that is required to justify confidential treatment. The agency has incorporated into its regulation the latest court test for substantiating confidentiality. Although the USITC regulation does not specifically refer to this test, the NHTSA believes that it would be necessary for a submitter to make a similar showing to them in support of confidential treatment of information.

The Motor Vehicle Manufacturers Association (MVMA) alleged that the agency's regulation exceeded the requirement of existing judicial precedent that governs this area. It suggested that the information required by section 512.4(b) paragraphs (2), (3), and (4) requiring submitters to support the fact that they have not released information goes beyond the test in *National Parks and Conservation Association v. Morton*, 498 F.2d 765 (D.C. Cir. 1974). *National Parks* requires, in part, that confidential information be that which is not customarily released. MVMA alleges that this does not require NHTSA to mandate by regulation that a company check every possible source of publication of information claimed to be confidential.

Although quoted in *National Parks*, the "customarily not released to the public" language is not the only test imposed by the court in *National Parks*. That language is an excerpt of the Senate Report on the Freedom of Information Act (5 U.S.C. 552) (S. Rep. No. 813, 89th Cong. 1st. Sess. 9 (1965)). The courts have attempted to use and further refine this Congressional language. The *National Parks* case in particular illustrates the court's dissatisfaction with the "customarily not released" test when it stated that a finding that

information is not customarily released would not alone justify confidential treatment. Rather, the court imposed a two-pronged test that measures the substantial competitive harm resulting from disclosure of information or the impairment of the Government's ability to obtain future information if similar information is released.

It is axiomatic that the "customarily not released" test in and of itself could never be conclusive of information's confidentiality absent other considerations. The fact that information is customarily not made public does not mean that the specific information for which confidentiality is requested has not been made public. If that information has in fact been made public, it does not merit confidential status under the *National Parks* test. Accordingly, some showing that information for which confidential treatment is requested has not been previously made public is a prerequisite to determining confidentiality.

Assuming the validity of the above requirements, the MVMA and others argue, nonetheless, that it is too burdensome, because it requires companies to investigate all possible instances where information may have been made public. They suggest that a submitter will be required to interview every employee to ensure that information has not been leaked.

The agency has imposed a reasonable burden upon a manufacturer to take some limited steps to check that its so-called confidential information has not been disclosed. As the preamble to the notice of proposed rulemaking indicated, it is not the intention of the agency that submitters ensure that information has never been accidentally disclosed. Rather, the agency demands that a submitter ensure that to its knowledge there have been no accidental or purposeful disclosures of the information. This requires only that a diligent effort be made by the submitter to take minimal steps ensuring that its information is actually confidential. The agency concludes that this is not a major burden upon a submitter of information.

With respect to the requirements of paragraphs (2) and (3) of section 512.4 (b), Wagner Electric Co. suggested that disclosures of information to parent companies or to wholly owned subsidiaries not fall within those groups to whom disclosures must be reported to the agency. The NHTSA disagrees with this position. The agency wants to know of such a disclosure, but a disclosure to a parent or

wholly owned subsidiary does not necessarily mean that the information has been made public, which might deny the information confidential treatment. A submitter can explain, under the provisions of paragraph (3), that disclosure to a parent or subsidiary does not compromise the confidential nature of the information.

General Motors (GM) indicated that it considered overly burdensome the requirement that it indicate what steps had been taken to assure the confidentiality of the submitted information in its possession (512.4(b) (2)). It argued that this requirement would require it to detail its plant security system or other security measures that could in turn jeopardize its future security.

The NHTSA has no interest in the specific internal security devices of any manufacturer's facilities. The NHTSA simply wants the manufacturer to briefly indicate, pursuant to paragraph (2), that proper precautions were taken to preserve the confidentiality of this information. The objective of this paragraph is to make sure that the submitter has treated this information differently from the ordinary information in its possession. If, on the other hand, the submitter has taken no measures to safeguard its own information, its claim for confidential treatment by the Government is somewhat diminished.

The MVMA asserted that the requirement of documenting every possible authorized and unauthorized disclosure of information would be burdensome. Such documentation, it argued, would require submitters to interview every person that might have access to the information to ascertain possible disclosures as well as monitor the press for possible unauthorized leaks.

The NHTSA does not consider it unreasonable to ask the submitter of information to list all of the recipients of information other than the submitter. In most instances, truly confidential information will not have been supplied to excessive numbers of individuals or entities beyond the submitter. The NHTSA concludes that information that is really confidential will be protected by the submitter. The agency is confident that any submitter with such information would know to whom, outside its organization, it has given that information. In fact, most submitters should have this information readily available. Any submitter that is unaware of outside organizations in possession of its confidential information may have to do more

extensive research, but the need for such research itself may be indicative of meager internal controls of so-called confidential information and may imply that the information is really not confidential.

As to the allegations that submitters must monitor all trade newspapers to discover possible unauthorized disclosures, these are exaggerations of the effects of this rule. Paragraph (4) of Part 512.4(b) requires notification to the agency of *known* authorized and unauthorized public disclosures. Submitters are under no obligation to ensure that there have been no unauthorized releases of their information. Their duty is simply to report those instances of disclosure of which they are aware. The NHTSA believes that most unauthorized disclosures of confidential information that are subsequently reported in trade papers or newspapers are likely to be brought to the submitter's attention.

Several commenters complained about the requirement in paragraph (5) of section 512.4(b). That paragraph requires submitters of information to notify the agency of existing confidentiality determinations made by the NHTSA, other agencies, or the courts relating to the confidentiality of the information or similar information. Submitters of information complained that the NHTSA was in better position to canvass court decisions relating to confidentiality and to review all of the decisions of other agencies. They argued that it was overly burdensome for submitters to do all of this research.

These comments indicate a misunderstanding of the requirements of this section. The agency does not intend that the submitter of information provide the agency with the latest judicial and agency opinions regarding the confidentiality of similar information of other submitters. This paragraph simply requires the submitter of information to supply the NHTSA with determinations respecting the confidentiality of its own similar or identical information. A submitter of information should be aware of these determinations without need to do any research whatsoever. Accordingly, the burden of this requirement upon the submitter of information is minimal. To clarify the agency's intention with respect to this paragraph, the NHTSA is modifying the language somewhat to make it clear that a submitter is responsible only for determinations relating to its own information.

The Motor Vehicle Equipment Manufacturers



Association (MEMA) suggested that paragraph (8) was unnecessary. That paragraph requires information as to the effect of a disclosure of voluntarily submitted confidential information upon the ability of the NHTSA to obtain future voluntary information. The MEMA indicated that it could see no reason to raise this inquiry since it is the manufacturers' interests in confidentiality that will be harmed by disclosure not necessarily the agency's. The paragraph (8) requirement was included to provide information as to the potential harm that disclosure might impose upon the ability of the NHTSA to obtain information through voluntary means. This inquiry is one of the two pronged tests employed in *National Parks, supra*, and is frequently cited as being the appropriate test for confidentiality of voluntarily submitted information. Therefore, the agency does not agree with the MEMA's comments that this information is unnecessary.

Paragraph (9) requires a submitter of information to indicate the amount of time for which confidentiality is requested. The MEMA complained that in the instance of trade secrets no time limit is appropriate. The agency does not agree that trade secrets are always permanently confidential. Some trade secrets may become common knowledge within a certain amount of time. Nonetheless, paragraph (9) permits a submitter of information to request and justify an indefinite time period for maintaining the confidentiality of its information.

Many commenters suggested that the information submitted in support of their confidentiality requests would in turn be confidential and, if released, could cause them competitive harm. They suggested that submitters might fear to support their claims for confidentiality since the support information could in some instances be even more harmful, if disclosed, than would the disclosure of the originally submitted information. Commenters, therefore, argued that the agency should at least return any information submitted in support of a confidentiality request if that request is subsequently denied.

The agency intends by this regulation to establish a procedure where specious requests for confidentiality are discouraged while those requests that are meritorious can be handled efficiently. The agency concludes that a submitter of information who believes that disclosure of its information will result in competitive harm will sup-

port its request with necessary information. Information submitted in support of a claim of confidentiality can also be requested for confidential treatment. Consequently, the agency does not expect that this provision will discourage appropriate confidentiality requests. For the reasons stated earlier in this preamble, the agency disagrees with arguments favoring the return of information submitted to the NHTSA and will not undertake such an approach.

Paragraph (h) of Part 512.4 requires submitters to update their confidentiality requests if intervening events would change the confidentiality determination. Commenters objected to this requirement as being unnecessary and costly. For example, they argued that since decisions are made immediately with respect to confidentiality, updating the information is unnecessary.

Not all decisions respecting confidentiality are made immediately. As stated earlier, most confidential information that would otherwise subsequently be made public will have an immediate determination of confidentiality. However, information that is not customarily made public by the agency pursuant to one of the agency's established procedures will not have a confidentiality determination made with respect to it until such time as a FOIA request is received. For this reason, it is necessary that information submitted by manufacturers for which confidentiality is requested be updated when circumstances change that request. If, for example, a company voluntarily disclosed information in the interim before the agency determined confidentiality, the NHTSA should be made aware of this fact since the disclosure would make the confidentiality determination moot.

Updating of previous confidentiality requests also applies even after confidentiality has been granted. In certain instances, termination of confidentiality is conditioned upon the occurrence of a particular event. In such cases, the agency should be informed that the event has occurred so that the confidential status of the information can be discontinued. Moreover, there are times when information will become disclosed or other events will make its continued confidentiality unnecessary. In these instances, the agency should be informed of the disclosure in order to correct its determination. In conclusion, the agency does not agree that the updating provision is unnecessary.

The agency concludes that the updating provi-

sion will not be costly. The requirement merely states that a company shall inform the agency of any changes pertaining to the information. The updating responsibility is triggered when the submitter *knows* that the initial submission is incorrect or the information given in that submission has changed. It is not required that a submitter constantly monitor all information submitted pursuant to a confidentiality determination as suggested by GM. A submitter is only charged with the responsibility of an update when it *knows* that the information previously submitted was erroneous. If by accident or mistake, the submitter does not know or realize the initial error or changed circumstances, there is no duty upon it to make the amendment. Therefore, the agency concludes that this is a reasonable burden to place upon the submitter of information.

Commenters objected to paragraph (i) of Part 512.4 which states that a submitter may lose its claim of confidentiality through failure to comply with the requirements of paragraph (b). Paragraph (i) establishes times when a noncompliance *may* be deemed a waiver of the confidentiality claim and times when a noncompliance *will* waive the confidentiality request. The times when confidentiality will be lost are few: (1) failure to file the required certificate, (2) failure to request confidential treatment, and (3) failure to establish the necessity for confidentiality. These failures will result in the loss of confidential treatment for the information. In other instances where technical insufficiencies in the required submissions exist, the agency may deem a claim of confidentiality to have been waived. On the other hand, the agency may allow the submitter to perfect its submission.

The discretionary waiver aspect of paragraph (i) allows the agency the necessary latitude to deal with all possible circumstances. For example, if a submitter is knowingly delaying or otherwise interfering with the determination process by failure to supply complete information, and the agency needs that information immediately, the NHTSA must have the authority to deny the claim of confidentiality. To do otherwise would jeopardize the public welfare while permitting submitters to avoid the agency's regulations. In most instances, however, where a submitter merely neglects to include a minor part of the required material and the oversight is not deemed to be intentional, the agency would normally grant the

submitter additional time to substantiate its claim. The agency will exercise reasonable discretion in determining whether a submitter's confidentiality request has been waived.

Commenters disagreed with the regulation in section 512.4(i) to the extent that it allows the use of criminal and civil penalties for failure to amend confidentiality requests when the initial information has changed or an error has been discovered in the initial filing. These commenters challenged the authority and the wisdom of invoking either of these penalties.

The NHTSA has the authority to enforce its regulations through civil penalties (15 U.S.C., 1917, 1948, 1989, and 2008). This authority is necessary to encourage adherence to the agency's regulations. The NHTSA will retain the civil penalty provision of this paragraph. However, the agency has considered the comments submitted to it and concludes that the imposition of criminal penalties is unnecessary in the enforcement of this requirement.

#### Determining Confidentiality

The Automobile Importers Association (AIA) complained that Part 512.5 was very complex and should be clarified. For example, the AIA indicated that the lengthy set of phrases connected by disjunctives and conjunctives was beyond easy comprehension. Further, the AIA indicated that the definition of "voluntarily submitted information" in this section should be amended. Currently, the section defines "voluntarily submitted information" as that information that could not be compelled by compulsory process. The AIA would have the agency define voluntarily submitted information as all information submitted to the agency voluntarily regardless of the fact the information could have been compelled by the NHTSA.

Responding first to the comment that the language is confusing, the agency has concluded that the language of this provision is somewhat unclear. Proposed paragraphs (1) through (4) state that information is accorded confidential treatment if it is a trade secret or commercial or financial information that has not been previously disclosed and whose disclosure would likely result in substantial competitive harm to the submitter. Proposed paragraph (5) establishes a somewhat different test for voluntarily submitted information that is a trade secret or confidential business

information. These two tests conform to the guidelines established by the *National Parks* case. The agency is amending this section by consolidating several of the paragraphs to clarify the tests for determining confidentiality.

The AIA also recommended that the agency adopt a different definition of "voluntarily submitted information." The purpose of proposed paragraph (a) (5) was to establish a test for preserving the confidentiality of information that the agency could not compel by compulsory process. If the agency were to release such information and such release were to discourage the submission of information that the agency could not otherwise obtain, then the NHTSA might be hindered in fulfilling its mandate. Accordingly, the agency needs to be sure that it does not discourage the flow of this information. The AIA suggestion would expand the category of voluntarily submitted information to include even that which could be produced by compulsory process but which a submitter has decided to submit voluntarily. The NHTSA disagrees with the AIA's suggestion. Since the NHTSA can compel much of the information currently submitted voluntarily, the real distinction in information submitted to the agency is whether or not it can be compelled. The agency continues to believe that information that can be compelled by it should not be subject to the same standards as that information which is freely given to the agency and which the agency could not compel.

The AIA objected to the requirements of section 512.6(d) that allow the NHTSA to delay confidentiality determinations for some information until 10 days after the receipt of a FOIA request. The AIA believed that this requirement would overly burden submitters of information since they would be required under Part 512.4(h) to update their confidentiality requests if changes occur even though in these instances confidentiality determinations would not be made upon receipt of the information, but upon the receipt of a FOIA request. Earlier in this preamble, the agency stated that the burden of updating information for which confidentiality was requested is reasonable and necessary, particularly when responding to FOIA requests. It would be improper under the FOIA for the agency to withhold information that should be made available. If information previously determined to be confidential subsequently loses its con-

fidentiality, that information might be subject to release under FOIA. Accordingly, the agency must require that submitters update this information when necessary to ensure full compliance with existing laws relating to the release of information. With respect to the other time periods for determining confidentiality, the agency is increasing them from 10 to 30 days as a result of the increased volume of confidentiality requests.

The AIA complained that the provision in section 512.6(e) that permits the agency to extend the time periods applicable to making determinations under various sections of the regulation render those time limits meaningless. It suggested that the NHTSA only has to prove good cause to itself that an extension is warranted.

The purpose of this provision is to provide for those instances in which a determination cannot occur within the normally established time frame. It is the intention of the agency to conform to the time requirements imposed upon it unless unusual circumstances prohibit timely determinations. For example, in certain rulemaking actions manufacturers wait until the last day before submitting comments. If many comments arrived simultaneously with confidentiality requests, the agency might be unable to make all the determinations with the specified time limits. Therefore, the agency needs some discretion to extend time limits. Paragraph (e) places a burden upon the agency to establish "good cause" for an extension. These reasons must be set out in writing and provided to the submitter. Therefore, the submitter will have the opportunity of contesting the agency's "good cause" determination. As a further safeguard against abuse of the extension provision, the agency has indicated in this section that the extension as it applies to FOIA requests will be done in compliance with 5 U.S.C. 552. The NHTSA has determined that these procedures will preserve the necessary latitude required by the agency to deal with all possible contingencies while preventing routine abuse of the extension provision.

Several commenters objected to paragraph (f) of section 512.6 which specifies that the NHTSA will notify a submitter of the determination respecting its confidentiality request. The regulation indicates that this notification will provide, in the case of denials, that the information will be made public not less than 10 working days after the submitter of the information has received notice. The

provision further states that the 10-working day requirement can be modified if it is in the public interest that the information be made available earlier. Commenters objected to the 10-working day requirement some indicating that foreign submitters are particularly disadvantaged by such a short time period.

The time periods provided for the release of information are short for a number of reasons. First, in the cases of FOIA requests, the agency must respond to the request within a relatively short time frame. The agency cannot, as some commenters suggest, permit submitters of information extensive periods of time to react to the agency's determinations in FOIA cases. Second, information frequently will be needed for rulemaking or other agency needs that would otherwise be delayed by a lengthy interval between a confidentiality determination and release of the information. The agency also must have the authority to reduce the time periods even further if the circumstances indicate that the public interest demands the immediate release of this information. Even under emergency release conditions, however, a submitter will be given some notification of the pending release of its information even though such notice might be short. Within even an abbreviated time frame, a submitter would have the opportunity to seek whatever judicial remedy is available to it. Accordingly, the agency concludes that the time provisions of this section meet the needs of the agency for making information available in the shortest possible time while still permitting the submitter of the information to seek whatever recourse it chooses when its confidentiality request has been denied.

The AIA pointed out that nothing in paragraph (f) indicates that the notification of the determination will be made immediately. They were concerned that the NHTSA might make a determination in some instances and not notify a submitter for some time. To prevent this from occurring, the AIA suggested some modification in the language of the provision to ensure that the agency is required to give immediate notification of a determination. Since this has always been the intention of the NHTSA, the agency agrees with the modification suggested by the AIA and changes this provision accordingly.

General Motors stated that section 512.6(f) (2) was insufficient because, although it indicates that

a submitter of information will receive notice of some sort, it does not indicate that the notice of denial will state the reasons for such a denial. The section states that the submitter will be notified in writing of the denial of its confidentiality request. The agency intends that this written notice will state the reasons for the denial. To clarify this, the NHTSA is modifying this section to indicate that a statement of the reasons for denial will be part of the written notice.

A few commenters were troubled by paragraph (g) of section 512.6. This paragraph allows submitters whose requests for confidentiality have been denied to petition for a reconsideration of that denial. Dunlop Tire and Rubber Co. indicated that a petition for reconsideration was a waste of effort since the same office would be making a determination of the reconsideration petition as had made the initial denial. Accordingly, Dunlop proposed that a submitter be permitted to go directly to court without recourse to the reconsideration process.

The NHTSA disagrees with the Dunlop position that reconsideration is a futile effort. A petition for reconsideration allows a submitter of information to further emphasize a portion of its request that it may feel has been insufficiently considered by the agency. The reconsideration process allows all parties the opportunity to discover and rectify possible errors without recourse to costly and time-consuming litigation. The agency notes that it has used petitions for reconsideration in the area of rulemaking for many years and those petitions have frequently resulted in amendments of agency rulemaking actions. Therefore, the NHTSA concludes that the reconsideration process is a meaningful check upon the agency's actions and will continue to allow it when making confidentiality determinations. However, the regulation states that a submitter may petition for reconsideration. A submitter is not required to file such a petition and may instead seek judicial review.

Volkswagen argued that the petition for reconsideration process was rendered meaningless since it was possible that the information for which confidentiality was claimed could be released pending a determination on the petition for reconsideration. The paragraph states that the Chief Counsel may postpone the release of information pending a decision on the petition for reconsideration. This implies, however, that release may not

be postponed in some cases. It is contemplated that in the majority of instances material will not be released until a final determination on the issue of confidentiality is made. Therefore, material generally will not be made public during the reconsideration process. In exigent circumstances, however, the agency does retain the discretion to release information if the public interest so dictates. Even in these unusual circumstances, a submitter of the information would be informed of the pending release of the information and would be able to then seek an immediate judicial intervention prior to the release of the information.

The AIA suggested that the agency adopt a review procedure for the denials of requests for confidentiality that would allow a submitter to petition someone in the Office of the Secretary of the Department of Transportation for a review of the confidentiality request. The NHTSA has established its own internal review of denials through the petition for reconsideration process. A submitter that is still dissatisfied with the agency's action can seek a judicial remedy. Although the Secretary of the Department has authority over agency functions, that office does not review routine agency decisionmaking and does not have sufficient resources to act as a review board for every agency action. The NHTSA notes that the need for Secretarial review of these decisions is not apparent. Accordingly, the agency declines to adopt AIA's suggested modification.

General Motors objected to section 512.7(a) (2) which indicates that a confidentiality determination remains in effect until, among other things, a change occurs in applicable law. GM suggested that this was impermissibly vague. It stated that some remote lower court might make an adverse ruling on an issue of confidentiality while the Supreme Court may have decided otherwise in another case. It feared the NHTSA would follow the rule of the lower court.

The agency disagrees with GM that this provision is impermissibly vague. A change in applicable law might include a statutory change or a change in judicial interpretation of existing statutes. However, as GM must well know, the Supreme Court is the ultimate authority with respect to judicial interpretation of statutes. Accordingly, the agency would not terminate a confidentiality determination when a lower court issued a decision that might be in conflict with

existing pronouncements from the Supreme Court. The agency does not consider every lower court decision to indicate a change in the applicable law, but it does consider the pronouncements of major courts as indicative of changes in the status of the law and may review confidentiality determinations in the light of those pronouncements. In any event, if the agency responded to a change in law by determining to reverse a previous finding of confidentiality, it would provide notice of that determination and the reason therefor before releasing the information in question.

#### **Disclosure of Confidential Information**

Sections 512.8 and 512.10 of this regulation elicited many comments that were for the most part opposed to the release of information that has been determined to be confidential. Many commenters suggested that these two provisions be deleted entirely or, in the alternative, modified to limit severely the right of the agency to release confidential information. Commenters expressed the erroneous belief that these provisions would combine to undermine the confidentiality of information that is normally classified as confidential. The comments indicate a need for explanation of the agency's intentions, its statutory powers and limitations, and the judicial precedents that govern the area of discretionary release of information determined to be confidential.

In section 512.8, the agency established separate criteria for the release of different types of confidential information. These criteria are recitations of the various statutory sections which permit the agency to disclose such information. Section 113 of the National Traffic and Motor Vehicle Safety Act of 1966 (the Act) (15 U.S.C. 1401) states that "information received pursuant to Title I of the Act relating to trade secrets or other matters referred to in 18 U.S.C. 1905 shall be confidential but may be disclosed when relevant in any proceeding under this title." This statutory language is incorporated into section 512.8 (a) (1).

Section 158(a) (2) (B) of the Act (15 U.S.C. 1419) specifies that confidential information obtained under Part B of the Act may be released if "necessary to carry out the purposes of this title." This language is adopted in section 512.8(a) (2). Finally, section 512.8(a) (3) permits the release of confidential information obtained under Parts I and V of the Motor Vehicle and Cost Savings Act

(15 U.S.C. 1901 *et seq.*) if the information is relevant to any proceeding under the title under which the information was obtained. The authority for this release is found in 15 U.S.C. 1914 and 2005. Accordingly, comments to the agency that any release of confidential information is contrary to the agency's statutory authority are entirely without merit.

Commenters argued that regardless of any possible statutory authority granted to the agency in its various Acts to release confidential information, 18 U.S.C. 1905 states that information relating to trade secrets and other areas of business confidentiality cannot be released. This comment indicates a misunderstanding of section 1905. Section 1905 states that certain information should be confidential and not released. However, section 1905 further states that the information outlined in that section shall not be released "except as provided by law." Any release of confidential information made pursuant to the agency's validly enacted enabling Acts is a release provided by law and, therefore, permissible under section 1905. Therefore, the agency declines to delete the discretionary release provisions of the regulation that permit the release of information under the tests established by the Act and incorporated in Part 512.8.

Some commenters argued that although the release of confidential information might be permissible under existing legal authority, the agency should not release the information. They suggested that such release will jeopardize future cooperation between the agency and the industry. Further, they argued release will invite litigation increasing the adversarial relationship between the agency and the industry.

When considering the consequences of the release of confidential information, the submitters of that information should examine existing agency practice. The agency for years has been operating under the statutory provisions permitting release of confidential information. This regulation simply formalizes the release procedures used by the agency but does not increase the existing authority of the agency to release information. During the time that the agency has operated with this authority, some releases of confidential information have been made when the agency determined such releases to fall within the parameters prescribed by the applicable statutory

authority. However, for the most part, confidential information has not been released. The NHTSA does not intend by this regulation to alter this practice. The agency realizes the importance to the competitive process of maintaining the confidentiality of business information. Accordingly, the agency will not release confidential information unless the release of such information meets all of the statutory requirements for release and is deemed to be in the public interest.

Commenters suggested that when the release of confidential information is necessary it should be made in the least offensive form. For example, they suggested that aggregate information or unidentified information might sometimes meet the need for public release. The agency agrees with these comments and will try to release as little information as is necessary and will attempt to do it in an inoffensive manner. The NHTSA believes that such an approach reflects existing judicial decisions such as *Pennzoil v. FPC*, 534 F.2d 627 (5th Cir. 1976) which indicated that agencies should examine alternative, less damaging methods of public disclosure.

Most commenters suggested that the 10-work-day discretionary release requirement was unnecessarily short. Many suggested longer time periods prior to release to permit the submitter time to take action to preserve the confidentiality of its information. Further, commenters objected to the provision that allows the administrator to waive the 10-day notice requirement if the public interest will be served by such waiver. At the least, they argued, a 10-day minimum is required. Some even suggested that any time period less than 10 days would violate due process.

The existing notice provision is in accordance with other notification provisions in this regulation. As stated earlier in this preamble, the agency has concluded that this time period provides an adequate opportunity for submitters of information to seek whatever recourse they feel may be necessary to preserve their rights. Accordingly, to prevent the possibility of delay in the release of information that the agency considers necessary to its functions, the NHTSA will not amend the 10-day notification provision.

With respect to the Administrator's discretion to waive the notification provision when the public interest demands, the agency concludes that this discretion is necessary. The exigencies of the

agency's regulatory activities may, on rare occasions, necessitate such waiver. For example, the Acts under which the agency operates grant the agency broad powers to protect the public safety. These powers include the right to act quickly to save lives. If the agency were to establish an inflexible minimum 10-day notice provision, it would be restricting its validly granted statutory authority. This would undesirably limit our ability to meet our responsibilities to the public as stated in the Acts, and in their legislative histories. Accordingly, the agency will not limit the Administrator's discretionary powers to respond to emergencies. Further, the agency notes that the courts and the FOIA Report substantiate the agency's position that minimum time limits must be flexible. The agency concludes that allegations of a due process violation when minimum time limits are not established are without merit and do not reflect current judicial thinking. The agency will always seek to provide 10-working days notification to the submitter of information. In those instances where this notice is not practicable the agency will provide sufficient time for the submitter to seek judicial recourse if it so desires.

The MVMA went so far as to suggest that prior to the release of confidential information the agency is required to have a formal adversarial hearing. For their support, they cited *Mathews v. Eldridge*, 424 U.S. 319 (1976). This case held only that some form of reasonable opportunity to be heard must be granted prior to the deprivation of a property right. The court, however, stated that full adversarial proceeding was unnecessary and that "[t]he judicial model of an evidentiary hearing is neither a required, nor even the most effective method of decisionmaking in all circumstances" (424 U.S. at 348). In fact, only in the rarest of circumstances have the courts required a full adversarial hearing prior to the termination of property rights. *Goldberg v. Kelly*, (397 U.S. 254 (1970)). In that case, the court required a hearing prior to the termination of welfare benefits since to do otherwise would impose an undue hardship upon the recipient which might, in fact, endanger the recipient's life. In many similar cases that are less life-threatening courts have not required formal pre-termination hearings. Certainly the release of confidential information does not pose the danger to life itself that warranted the *Goldberg* approach, and accordingly, its release does not require

formal hearings. The NHTSA concludes that its provision allowing the opportunity to comment prior to any release provides ample opportunity to be heard in compliance with existing judicial determinations.

The MVMA further argued that if the agency intends to continue with its informal procedures as outlined above it should at least indicate that it will consider the comments received and a written determination as to why the release is being made and upon what grounds the public interest is served. As stated earlier, the reasons for the release will be supplied in the first notice to the submitter. Responding to the MVMA's concern that the comments received may not be considered, all timely submitted comments will be considered prior to release of the information.

Volkswagen and several other commenters suggested that the agency better define the term "public interest." They suggested that the agency adopt a definition similar to that of the EPA (40 CFR 2.205(g)) which permits the EPA to act expeditiously when it determines that it "would be helpful in alleviating a situation posing an imminent danger to public health or safety. . . ."

The NHTSA considers that the existing wording of the regulation adequately details the necessary findings of the agency that permit the immediate disclosure of confidential information when it is in the public interest. The agency considers it unnecessary to further define by regulation what constitutes the public interest. Attempts to define terms such as public interest are usually unsuccessful, because these terms embrace very broad, diverse, and often-changing concepts. Public interest is something that can only be determined in the context of specific facts and their potential ramifications.

Although the agency will not define "public interest" in the regulation, submitters can be assured that the agency will release information only after making some showing that such release truly benefits the public. Existing case law clearly reflects the fact that certain findings must be made by an agency more than the mere recitation that the release of information is in the public interest. For example, in *Pennzoil v. FPC*, 534 F.2d 627 (5th Cir. 1976), the Court did not invalidate the public interest test, but stated that the FPC had not examined all of the relevant criteria that should go into the making of the

public interest determination. The court suggested that the agency consider whether: (1) the disclosure would aid the agency, (2) the disclosure would harm the public, and (3) there are alternatives to disclosure that will work equally well (i.e., disclosure of aggregated or summarized information). Agency discretion exercised pursuant to a general public interest authority has been upheld in many other instances. *Administrator, FAA et al. v. Robertson*, 422 U.S. 255 (1975); *Westinghouse Electric Corp. v. NRC*, 555 F.2d 82 (3rd Cir. 1977).

The AIA suggested that Part 512.8(b) should specify more than just the reasons for the need for release of confidential information. They suggested that the agency require more specific information to be stated in the Administrator's notice to the submitter. The agency realizes that releases of confidential information may be contested by the submitter. Accordingly, the NHTSA will ensure that the record of the decisionmaking process and reasons for the final determination are fully established to facilitate judicial review. However, for purposes of this regulation, the agency concludes that it is sufficient to indicate that the Administrator will clearly establish all of the reasons for releasing information.

Several commenters objected to the possible releases of information under section 512.10 of this regulation. As proposed, this section permitted the disclosure of confidential information (1) to the Congress or the Comptroller General, (2) pursuant to court order, (3) to the Office of Secretary of the Department of Transportation (DOT), (4) with the consent of the submitter, (5) to other Federal agencies in accordance with applicable law, and (6) to contractors if necessary.

The agency does not fully understand the theory on which the objectors to this provision base their claims. Generally, NHTSA does not have authority to withhold information of any sort from the Congress, review or oversight offices within the Executive branch, or the courts pursuant to a court order. Nor can the NHTSA deny information to the Secretary of the DOT, since the agency derives its authority from that official. Further, the agency is not at liberty to interfere with any other law that would expressly or impliedly require the agency to yield information to another Federal agency. The only provisions of this section that the agency can really affect are those relating to the release of information with the consent of the

submitter, with which the agency assumes no one argues, and to the submission of information to contractors. In the latter case, the agency has indicated in the regulation that the contractors will be required to maintain the confidentiality of the information or be responsible to the parties for the consequences of its release. Therefore, in this section of the regulation, the agency has merely indicated the two instances when it will release information and has indicated that there will be safeguards for the information in those instances. The other parts of this section indicate those occasions when the NHTSA is obliged to disclose information pursuant to higher authorities. With respect to the release of information to higher authorities, the NPRM neglected to include the release of information to offices in the Executive branch that have review or oversight authority. The regulation has been amended to correct this omission, and has been reorganized for clarity.

The MEMA argued that any release of information under this section should only be made as required by law. As stated previously, that is mostly what this section does. Further, the MEMA suggested that the agency impose regulations that would safeguard the secrecy of the information in the hand of another agency or the Congress that is the recipient of the information.

The agency can not impose requirements upon the Congress or other administrative agencies. The NHTSA cannot require the Congress, for example, to promise to keep information confidential. It is assumed that the Congress or any other agency will treat confidential information with the care that it deserves. The agency, however, attempts to safeguard the information to the extent possible by ensuring that the requests for confidential information are valid and authorized and by indicating to the recipient at the time the information is released that it is confidential and should be treated accordingly. Further, the agency typically obtains a written agreement from a requesting agency that it will release the information only if required by law to do so and will consult with NHTSA regarding any FOIA requests that the requesting agency receives for the information. The agency has amended this section of the regulation to effect some of these practices.

Some commenters criticized the provision in the regulation that permits the agency to supply confidential information obtained pursuant to the



agency's compulsory process devices to other agencies that do not have such powers to compel information. These commenters indicated that they thought that such a transfer of information would be contrary to the rights of a submitter.

The NHTSA agrees that access by other agencies to such confidential information possessed by the agency should be limited. However, some access to confidential information by other agencies is legitimate and necessary. When the agency is expressly or impliedly required to provide information pursuant to applicable law, the NHTSA must supply the information. Other requests for information will be closely scrutinized by the NHTSA. The NHTSA will only release information that it has received through compulsory process to agencies that can compel the information directly from the submitter or that are otherwise authorized by law to obtain it. The agency concludes that such a transfer of information is in the best interest of the government and the submitter. Through this sharing of information, a submitter is spared the expense of compiling and submitting information that is already available to the government. However, agencies that are not expressly or impliedly authorized to obtain information from the NHTSA and that cannot obtain information from the submitter directly will not be able to obtain information from the NHTSA that the agency has received through compulsory process. If Congress had intended those agencies to have the right to such information, it would have given them the right to receive it from other agencies or the power to obtain it.

The MEMA requested that a submitter be given notice of the government's release of information pursuant to this section. The agency cannot always give advance notice of releases in these circumstances because to do so could put the agency in the position of interfering with a valid and exigent investigation by the Congress, with a court proceeding, or with other Executive branch review or oversight of agency actions. The Congress has the authority, for example, to demand some information immediately. Accordingly, the agency might not be able to provide advance notice to a submitter that its information is being disclosed. In a recent case, *EXXON et al. v. FTC*, 589 F.2d 582 (D.C. Cir. 1978) the court indicated that a mandatory advance notice of release of confidential information to Congress was not required

unless the agency promised to give such a notice. The agency concludes that this recent decision confirms its position that releases of information in these instances that are required by law and which do not constitute the public disclosure of information are not the type of releases requiring advance notification.

The NHTSA has reviewed the existing law with respect to the disclosure of information to other government agencies and contractors and concludes that the question of whether advance notice of such disclosures is required remains unsettled. The agency believes that providing advance notice to submitters in these cases is not presently required by law nor always in the best interest of the agency, but will do so where appropriate. In the case of contractors, the agency notes that information will not be released to contractors if it would result in a conflict of interest for that contractor.

The AIA in a general comment about the release of confidential information expressed their concern that such a release might be considered a taking of private property for public use entitling the submitter of the information to compensation. They base this argument on the Constitution's Fifth Amendment protection of property rights from uncompensated public takings. In support of their argument, AIA cited two cases, *Continental Oil Company v. FPC*, 519 F.2d 31 (5th Cir. 1975), *cert den'd sub nom. Superior Oil v. FPC*, 425 U.S. 971 (1976); and *Westinghouse Electric Corp. v. Nuclear Regulatory Commission*, 555 F.2d 82 (3rd Cir. 1977), in which the issue of a compensable taking has been mentioned involving the release of confidential information. Unfortunately, neither of these judicial pronouncements have yet clarified this area of the law.

In *Continental Oil*, the court never reached the question of compensation, deciding the case on other issues. In *Westinghouse*, the court reached the issues of taking but determined that a taking could not occur where the information had been voluntarily given to the government. In dictum, the court indicated that a compelled production of confidential information which was subsequently released might result in a compensable taking. This issue was before the courts again in *Polaroid Corp. v. Costle* (Civil Action No. 78-113-S) in the U.S. District Court of the District of Massachusetts. However, that case was settled prior to reaching the merits of this issue. Therefore, there

is no legal precedent of which the NHTSA is aware indicating that such a release would constitute a taking, and the agency concludes that a taking will not occur as a result of such a release.

#### Miscellaneous Comments

A few commenters considered the affidavit requirement unnecessary. The MVMA alleged that it served no useful purpose and that its aim was to force people into compliance with the requirements. The MVMA further asserted that the requirement to state that the person has contacted those in authority to release confidential information and ascertained that the information had not been released necessitated the person's giving hearsay.

The above comments to this section are unwarranted by the relatively innocuous provisions of the affidavit. The affidavit simply requires a responsible official of the submitter of information to attest under oath to the accuracy of certain statements. First, the official attests to his authority. Second, the official attests to the confidentiality of the information. Since the submitter is asking the agency to make a confidentiality determination, it is proper to ask that the submitter attest to the fact that the information is confidential. Third, the authorized official must attest that he or she has contacted responsible officials who in the normal course of business may release information to determine whether the information has been released. This is the provision that the MVMA characterizes as requiring "useless hearsay." The purpose of this provision is not to prove conclusively that information was never released. This provision simply requires that the official attest to the fact that he or she has checked with the officials to discover any such disclosure. Since the provision goes to proving that the official checked with responsible personnel not to the truth of the statements of those personnel, it does not require hearsay. When the previous requirement is coupled with paragraph (4) of the affidavit, it is clear that the attesting official only attests to the fact that to the best of his knowledge information has not been released. In sum, the requirements of this provision are minimal and simply assure that the official has complied with the inquiry provisions of the regulation and has provided the agency with the information acquired through the inquiry.

The NHTSA received numerous comments suggesting additional classes of information that the industry would have the agency include within the classes of information presumed to be confidential. Almost every commenter suggested some classes for inclusion within the existing list. The effect of these comments, if adopted, would be to make almost every piece of information submitted to the agency presumptively confidential. Such an outcome would not serve the public interest nor would it comply with existing statutes granting the public access to governmental information.

The agency chose the existing classes because they were narrow enough to include only the information that the agency customarily finds confidential. The NHTSA concludes that such classes of information presumed to be confidential must be very limited and must not include information that is not normally considered confidential.

The NHTSA concludes that the existing list of classes of presumptively confidential information is sufficient for the present. The agency is experimenting with the class determination approach as a means to reduce the workload in making confidentiality determinations. At this time, however, the NHTSA does not have sufficient experience in the use of these classes to warrant an expansion of them. As soon as the agency becomes more familiar with this process, changes to the classes might be made increasing the information presumed to be confidential. This can only be done, however, after the agency evaluates the class determination procedure and further reviews the other types of information for which confidentiality is requested and which normally deserves confidential treatment. Accordingly, the agency declines to adopt the classes suggested by the manufacturers and other commenters at this time, but it will retain these comments for possible future inclusion within the regulation when experience indicates that such inclusion would be appropriate.

This regulation was reviewed under Executive Order 12044 and determined to be significant based upon the anticipated public comments on the proposed version of the regulation. However, voluntary implementation of the regulation during the past two years has demonstrated that initial concerns about having to submit significantly increased justification to support confidentiality requests and about increases in the release of confidential information have not been borne out.

Further discussion of these issues is provided above in this notice. No regulatory analysis or evaluation has been prepared for this notice since it imposes little or no additional cost on persons making confidentiality claims. The primary effect of the regulation is to codify existing agency practices in implementing statutory and case law regarding confidential information.

The principal author of this regulation is Roger Tilton of the Office of Chief Counsel.

In consideration of the foregoing, Title 49 of the Code of Federal Regulations is amended by the addition of a new Part 512, *Confidential Business Information*.

(Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); sec. 112, Pub. L. 89-563, 80 Stat. 725, amended Pub. L. 91-265, 84 Stat. 262 (15 U.S.C.

1401); sec. 119, Pub. 89-563, 86 Stat. 950 (15 U.S.C. 1914); sec. 204, Pub. 92-513, 86 Stat. 957; (15 U.S.C. 1944); sec. 408, Pub. L. 92-513 as added Pub. L. 94-364, 90 Stat. 985 (15 U.S.C. 1990d), sec. 505 Pub. L. 94-163, 89 Stat. 908 (15 U.S.C. 2005), delegation of authority at 49 CFR 1.50.)

Issued on December 30, 1980.

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Joan Claybrook  
Administrator

46 FR 2049  
January 8, 1981



**PART 512—CONFIDENTIAL BUSINESS INFORMATION**  
**(Docket No. 78-10; Notice 3)**

**Sec.**

**512.1 Purpose and Scope**

**512.2 Applicability.**

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**512.4 Asserting a claim for confidential treatment of information.**

**512.5 Substantive standards for affording confidential treatment.**

**512.6 Determination of confidential treatment.**

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**512.9 Class determinations.**

**512.10 Disclosure of information in certain circumstances.**

Authority: Sec 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); sec. 112 Pub. L. 89-563, 80 Stat. 725, amended Pub. L. 91-265, 84 Stat. 262 (15 U.S.C. 1401); sec. 119, Pub. L. 89-563, 80 Stat. 728, (15 U.S.C. 1407); sec. 104, Pub. L. 92-513, 86 Stat. 950, (15 U.S.C. 1914); sec. 204, Pub. L. 92-513, 86 Stat. 957, (15 U.S.C. 1944); sec. 408, Pub. L. 92-513 as added Pub. L. 94-364, 90 Stat. 985 (15 U.S.C. 1990d); sec. 505, Pub. L. 94-163, 89 Stat. 908 (15 U.S.C. 2005), delegation of authority at 49 CFR 1.50.

**§ 512.1 Purpose and Scope.**

The purpose of this part is to establish the procedure by which the NHTSA will consider claims that information submitted to the NHTSA, or which the NHTSA otherwise obtains, is confidential business information, as described in 5 U.S.C. 552(b)(4).

**§ 512.2 Applicability.**

(a) This part applies, in accordance with its terms, to all information which is submitted to the NHTSA, or which the NHTSA otherwise obtains, except as provided in paragraph (b).

(b) Information received as part of the procurement process, is subject to the Federal Procurement Regulations, 41 CFR, Chapter 1, as well as this part. In any case of conflict between the Federal Procurement Regulations and this part, the provisions of the Federal Procurement Regulations prevail.

**§ 512.3 Definitions.**

“NHTSA” means the National Highway Traffic Safety Administration.

“Administrator” means the Administrator of the National Highway Traffic Safety Administration.

“Chief Counsel” means the Chief Counsel of the National Highway Traffic Safety Administration.

“Confidential business information” means information described in 5 U.S.C. 552(b)(4).

**§ 512.4 Asserting a claim for confidential treatment of information.**

(a) Any person submitting information to the NHTSA and requesting that it be withheld from public disclosure as confidential business information shall—

(1) Stamp or mark “confidential” or some other term which clearly indicates the presence of information claimed to be confidential, on the top of each page containing information claimed to be confidential.

(2) Mark each item of information which is claimed to be confidential and which appears on a page marked in accordance with paragraph (a)(1) of this section, with brackets "[ ]".

(3) If an entire page is claimed to be confidential, indicate clearly that the entire page is claimed to be confidential.

(4) Submit the documents containing allegedly confidential information directly to the Office of Chief Counsel, National Highway Traffic Safety Administration, Room 5219, 400 Seventh Street S.W., Washington, D.C.

(5) In the case of a document containing information which is claimed to be confidential submitted in connection with a NHTSA activity for which there is a public file or docket, simultaneously submit to the NHTSA a copy of the document from which information claimed to be confidential is deleted, for placement in the public file or docket pending the determination of the claim for confidential treatment.

(6) Simultaneously submit to the NHTSA in writing the name, address, and telephone number of a representative for receipt of notice under this part.

(b) For each item of information marked confidential in accordance with paragraph (a) of this section, the submitter of the information shall submit information supporting the claim for confidential treatment to the NHTSA with the item. Such supporting information must show—

(1) That the information claimed to be confidential is a trade secret, or commercial or financial information.

(2) Measures taken by the submitter of the information has not been disclosed or otherwise made available to any person, company, or organization other than the submitter of the information.

(3) Insofar as is known by the submitter of the information, the extent to which the information has been disclosed, or otherwise become available, to persons other than the submitter of the information, and why such disclosure or availability does not compromise the confidential nature of the information.

(4) Insofar as is known by the submitter of the information, the extent to which the information has appeared publicly, regardless of whether the submitter has authorized that appearance or con-

firmed the accuracy of the information (include citations to such public appearances, and an explanation of why such appearances do not compromise the confidential nature of the information).

(5) Prior determinations of the NHTSA or other Federal agencies or Federal courts relating to the confidentiality of the submitted information, or similar information possessed by the submitter, including class determinations under this part (include any written notice or decision connected with any such prior determination, or a citation to any such notice or decision, if published in the Federal Register).

(6) Except for information submitted to the agency in connection with the NHTSA's functions under Title V of the Motor Vehicle Information and Cost Savings Act, as amended, whether the submitter of the information asserts that disclosure would be likely to result in substantial competitive harm, what the harmful effects of disclosure would be, why the effects should be viewed as substantial, and the causal relationship between the effects and disclosure.

(7) For information submitted to the agency in connection with the NHTSA's functions under Title V of the Motor Vehicle Information and Cost Savings Act, whether the submitter of the information asserts that disclosure would result in significant competitive damage, what that damage would be, why that damage should be viewed as significant, and the causal relationship between the damage and disclosure.

(8) If information is voluntarily submitted, within the meaning of section 512.5(a)(2) of this part, why disclosure by the NHTSA would be likely to prevent the NHTSA from obtaining information in the future.

(9) The period of time for which confidentiality is claimed (permanently or until a certain date or the occurrence of a certain event) and why earlier disclosure would result in the harms set out in paragraphs (b), (6), (7), or (8) of this section as the case may be.

(c) (1) If any element of the showing to support a claim for confidentiality required under paragraph (b) of this section is presumptively established by a class determination affecting the information for which confidentiality is claimed, the submitter of information need not establish that element again under paragraph (b).

(2) If the Chief Counsel believes that information which a submitter of information asserts to be within a class of information set out in Appendix B is not within that class, the Chief Counsel—

(i) Notifies the submitter of the information that the information does not fall within the class as claimed, and briefly explains why the information does not fall within the class, and

(ii) Affords the submitter of the information a reasonable amount of time, not less than 10 working days, to comply fully with paragraph (b) of this section.

(d) Information in support of a claim for confidentiality submitted to the NHTSA under paragraph (b) of this section must consist of objective data to the maximum extent possible. To the extent that opinions are given in support of a claim for confidential treatment of information, the submitter of the information shall submit in writing to the NHTSA the basis for the opinions, and the name, title, and credentials showing the expertise of the person supplying the opinion.

(e) The submitter of information for which confidential treatment is requested shall submit to the NHTSA with the request a certification in the form set out in Appendix A from the submitter, or an agent of the submitter, that a diligent inquiry has been made to determine that the information has not been disclosed, or otherwise appeared publicly, except as indicated in accordance with paragraph (b)(3) and (4) of this section.

(f) A single showing in support for a claim that information is confidential, in accordance with paragraph (b) of this section, may be used to support a claim for confidential treatment of more than one item of information claimed to be confidential. However, general or nonspecific assertions or analyses may be insufficient to form an adequate basis for the agency to find that information may be afforded confidential treatment, under section 512.3, and may result in the denial of a claim for confidentiality.

(g) Where confidentiality is claimed for information obtained by the submitter from a third party, such as a supplier, the submitter of the information is responsible for obtaining all information or certifications from the third party necessary to comply with paragraph (b).

(h) A submitter of information shall promptly amend supporting information provided under paragraph (b) if the submitter obtains information upon the basis of which the submitter knows that the supporting information was incorrect when provided, or that the supporting information, though correct when provided, is no longer correct and the circumstances are such that a failure to amend the supporting information is in substance a knowing concealment.

(i) Noncompliance with this section may result in a waiver or denial of a claim for confidential treatment of information. However, failure to provide the certification required in paragraph (e) of this section shall result in a denial of the claim. Noncompliance with paragraph (h) of this section may subject a submitter of information to civil penalties.

(1) If the provisions of paragraph (a) of this section are not complied with at the time the information is submitted to the NHTSA so that the NHTSA is not aware of a claim for confidentiality, or the scope of a claim for confidentiality, the claim for confidentiality is waived unless the agency is notified of the claim before the information is disclosed to the public. Placing the information in a public docket or file is disclosure to the public within the meaning of this part, and any claim for confidential treatment of information so disclosed is precluded.

(2) A request that information be afforded confidential treatment may be denied if the submitter of the information does not provide with the request all of the supporting information required in paragraph (b) of this section, and will be denied if the information provided is insufficient to establish that the information may be afforded confidential treatment under the substantive tests set out in section 512.2. The Chief Counsel may notify a submitter of information of inadequacies in the supporting information, and may allow the submitter additional time to supplement the showing, but is under no obligation to provide either notice or additional time to supplement the showing.

(j) Information received that is identified as confidential and whose claim for confidentiality is supported in accordance with this section will be kept confidential until a determination of its confidentiality is made under section 512.6 of this part. Information will not be publicly disclosed except in accordance with this part.

**§ 512.5 Substantive standards for affording information confidential treatment.**

(a) Information obtained by the NHTSA, except for information obtained by the NHTSA under Title V of the Motor Vehicle Information and Cost Savings Act, may be afforded confidential treatment if it is a trade secret, commercial, or financial information that is not already publicly available; and

(1) Which if disclosed, would be likely to result in substantial competitive harm to the submitter of the information, or

(2) Voluntarily submitted, and failure to afford the information confidential treatment would impair the ability of the NHTSA to obtain similar information in the future. Information whose production the NHTSA could not compel by compulsory process is voluntarily submitted information within the meaning of this part.

(b) Information obtained by the NHTSA under Title V of the Motor Vehicle Information and Cost Savings Act may be afforded confidential treatment if it is a trade secret, commercial or financial information that is not already publicly available and which, if disclosed, would result in significant competitive damage.

**§ 512.6 Determination of confidentiality.**

(a) The decision of whether an item of information may be afforded confidential treatment under this part is made by the Office of Chief Counsel.

(b) The determination of confidentiality is made within 30 working days of the Chief Counsel's receipt of the information and knowledge that the information is claimed to be confidential if—

(1) The information relates to a rulemaking proceeding for which a public docket has been established.

(2) The information relates to a petition before the NHTSA for which a public docket has been established.

(3) The information relates to a proceeding under Part B of Subchapter I of the National Traffic and Motor Vehicle Safety Act.

(4) The information relates to an investigation or proceeding by the NHTSA to enforce any regulation or standard, or

(5) The information is received under a reporting requirement established by the NHTSA.

(c) If information does not come under paragraph (b) of this section when received by the NHTSA, but is later determined to be information described in paragraph (b), the determination of confidentiality is made within 30 working days after it is determined that the information is information described in paragraph (b).

(d) For information not described under paragraph (b) of this section, the determination of confidentiality is made within ten working days after the NHTSA receives a request for that information under the Freedom of Information Act.

(e) The timing requirements prescribed in paragraphs (b), (c), and (d) of this section may be extended by the Chief Counsel for good cause shown on the Chief Counsel's own motion, or on request from any person. An extension of the timing requirement of paragraph (d) is made only in accordance with 5 U.S.C. 552. Any extension of time is accompanied by a written statement setting out the reasons for the extension.

(f) A person submitting information to the NHTSA with a request that the information be withheld from public disclosure as confidential business information is given immediate notice of the Chief Counsel's determination regarding the request.

(1) If a request for confidentiality is granted, the submitter of the information is notified in writing that the information is being kept confidential and the length of time during which the information will be kept confidential.

(2) If a request for confidentiality is denied in whole or in part, the submitter of the information is notified in writing of that denial, and is informed that the information will be placed in a public docket on a specified date, which is no less than ten working days after the submitter of the information has received notice of the denial of the request for confidential treatment if practicable, or some earlier date if the Chief Counsel determines that the public interest requires that the information be placed in a public file on such earlier date. The written notification of a denial specifies the reasons for denying the request.

(g) A submitter of information whose request for confidential treatment is denied may petition for reconsideration of that denial only on the basis of information or arguments that were not available at the time the original request for con-



confidentiality was made. The Chief Counsel may postpone placing the information in a public file in order to allow additional time to consider the petition for reconsideration. Petitions for reconsideration under this section shall be addressed to the Chief Counsel.

(h) If information which has been a subject of a confidentiality determination under this section is requested under the Freedom of Information Act, the Office of Chief Counsel advises the office processing that request whether the information has been determined to be confidential.

#### **§ 512.7 Modification of confidentiality determinations.**

(a) A determination that information is confidential business information remains in effect in accordance with its terms, unless modified by a later determination based upon—

(1) Newly discovered or changed facts.

(2) A change in the applicable law.

(3) A class determination under section 512.9 of this part, or

(4) The initial determination's being clearly erroneous.

(b) If the NHTSA believes that an earlier determination of confidentiality should be reconsidered based on one or more of the factors listed in paragraphs (a)(1)-(4) of this section, the submitter of the information is notified in writing of the NHTSA's intention to reconsider that earlier determination, and the reasons for that reconsideration, and is given an opportunity to comment which is not less than ten working days from the receipt of notice under this paragraph.

#### **§ 512.8 Discretionary release of confidential business information.**

(a) Information that has been determined or claimed to be confidential business information under § 512.6 of this part may be disclosed to the public by the Administrator notwithstanding such determination or claim if disclosure would be in the public interest as follows:

(1) Information obtained under Part A, Subchapter I of the National Traffic and Motor Vehicle Safety Act, relating to the establishment, amendment, or modification of Federal motor vehicle safety standards, may be disclosed when relevant to a proceeding under that part.

(2) Information obtained under Part B, Subchapter I of the National Traffic and Motor Vehicle Safety Act, relating to defects relating to motor vehicle safety, and failures to comply with applicable motor vehicle safety standards, may be disclosed if the Administrator determines that disclosure is necessary to carry out the purposes of that Act.

(3) Information obtained under Title I or V of the Motor Vehicle Information and Cost Savings Act may be disclosed when that information is relevant to a proceeding under the title under which the information was obtained.

(b) No information is disclosed under this section unless the submitter of the information is given written notice of the Administrator's intention to disclose information under this section. Written notice is given at least ten working days before the day of intended release, although the Administrator may provide shorter notice if the Administrator finds that such shorter notice is in the public interest. The notice under this paragraph includes a statement of the Administrator's reasons for considering the disclosure of information under this section, and affords the submitter of the information an opportunity to comment on the contemplated release of information. The Administration may also give notice of the contemplated release of information to other persons, and may allow such other persons the opportunity to comment. When a release of information is made pursuant to this section, the Administrator will consider ways to make the release with the least possible adverse effects to the submitter.

#### **§ 512.9 Class determinations.**

(a) The Chief Counsel may issue a class determination relating to confidentiality under this section if the Chief Counsel determines that one or more characteristics common to each item of information in that class will in most cases necessarily result in identical treatment of each item of information under this part, and that it is appropriate to treat all such items as a class for one or more purposes under this part. The Chief Counsel obtains the concurrence of the Office of the General Counsel, United States Department of Transportation, for any class determination that has the effect of raising the presumption that all information in

that class is eligible for confidential treatment. Class determinations are published in the *Federal Register*.

(b) A class determination clearly identifies the class of information to which it pertains.

(c) A class determination may state that all of the information in the class—

(1) Is or is not governed by a particular section of this part, or by a particular set of substantive criteria under this part.

(2) Fails to satisfy one or more of the applicable substantive criteria, and is therefore ineligible for confidential treatment.

(3) Satisfies one or more of the applicable substantive criteria, or

(4) Satisfies one of the substantive criteria during a certain period, but will be ineligible for confidential treatment thereafter.

(d) Class determinations will have the effect of establishing rebuttable presumptions, and do not conclusively determine any of the factors set out in paragraph (c) of this section.

#### **§ 512.10 Disclosure of information in certain circumstances.**

(a) Notwithstanding any other provision of this part, information which has been determined to be confidential business information, or which has been claimed to be confidential business information, may be disclosed pursuant to a valid request—

(1) To Congress.

(2) Pursuant to court order.

(3) To the Office of the Secretary, United States Department of Transportation and other Executive branch offices or other Federal agencies in accordance with applicable laws.

(4) With the consent of the submitter of the information.

(5) To contractors, if necessary for the performance of a contract with the Administration. In such instances, the contract limits further release of the information to named employees of the contractor with a need to know and provides that unauthorized release constitutes a breach of the contract for which the contractor may be liable to third parties.

## **APPENDIX A**

### **Affidavit in Support of Request for Confidentiality**

I, \_\_\_\_\_, being duly sworn, depose and say:

(1) That I am (official) and that I am authorized by (company) to execute documents on behalf of (company).

(2) That the information contained in (*pertinent document(s)*) is confidential and proprietary data and is being submitted with the claim that it is entitled to confidential treatment under 5 U.S.C. 552(b) (4) [as incorporated by reference in and modified by § 505(d) (1) of Title 5 of the Motor Vehicle Information and Cost Savings Act.]

(3) That I have personally inquired of the responsible (company) personnel who have authority in the normal course of business to release the information for which a claim of confidentiality has been made to ascertain whether such information has ever been released outside (*company*).

(4) That based upon such inquiries to the best of my knowledge the information for which (company) has claimed confidential treatment has never been released or become available outside the (company) except as hereinafter specified.

(5) That I make no representation beyond those contained in this affidavit and in particular I make no representations as to whether this information may become available outside (company) because of unauthorized or inadvertent disclosure except as stated in Paragraph 4; and

(6) That the information contained in the enumerated paragraphs of this affidavit is true and accurate to the best of my information, knowledge and belief.

\_\_\_\_\_  
(Official)

## **APPENDIX B**

### **Class Determination**

The Administration has determined that the following types of information would presumptively result in significant competitive damage or would be likely to result in substantial competitive harm if disclosed to the public—

(1) Blueprints and engineering drawings containing process of production data before the public availability, or within five years of the public availability, of the subject of the blueprints or engineering drawings, where the subject could not be manufactured without the blueprints or engineering drawings except after significant reverse engineering.

(2) Future model specific product plans, projected not more than three years into the future.

(3) Model specific projections of future sales mix, projected not more than three years into the future.

## **APPENDIX C**

### **OMB Clearance**

The OMB clearance number for this regulation is 2127-6025.



## PREAMBLE TO PART 520—PROCEDURES FOR CONSIDERING ENVIRONMENTAL IMPACTS

IDocket No. 73-32; Notice 21

The purpose of this amendment to Title 49 of the Code of Federal Regulations is to add a new Part 520 establishing procedures for considering environmental impacts.

A notice of proposed procedures on this subject was published on December 21, 1973 (38 FR 35018). Two comments were received on the proposed procedures: one, from the United States Environmental Protection Agency, supported the proposal and considered it to be responsive to the National Environmental Policy Act of 1969 (NEPA) and the NEPA guidelines prepared by the Council on Environmental Quality; the second, from General Motors Corporation, had some objections which have been carefully considered in this issuance of final procedures. In view of some of GM's comments, the issuance of the Department of Transportation (DOT) Order 5610.1B, "Procedures for Considering Environmental Impacts," (39 FR 35234), and further consideration within the NHTSA, the final procedures have been slightly modified.

*Definitions.* In order to differentiate a written environmental analysis submitted to the agency by its grantees or contractors from that undertaken by the agency itself, the meaning of the term "environmental assessment" has been changed from an internal agency evaluation process to an evaluation process external to the agency, and the term "environmental review" has been added to denote the written environmental analysis undertaken by the agency.

*Applicability.* "Consolidation of statements," section 520.4(f), allowing actions which have substantially similar environmental impacts to be covered by a single impact statement or environmental review culminating in a negative declaration is included in this final issuance.

GM commented that the increase in costs illustration used as an example for the project amendments exception in section 520.4(d)(5) (herein renumbered as 520.4(e)(5)) is ambiguous and could also permit a circumvention of the initial environmental evaluation process. In response to this, the section has been revised to make it clear that only project amendments with no environmental consequences are excepted from the review process. The criteria for determining which project amendments are excepted is intended to match that for excepting minor agency actions (§ 520.4(e)(6)).

Section 520.4(d)(6) of the proposed procedures was erroneously included and is accordingly deleted.

*Guidelines.* The general guidelines have been reworded, upon GM's request, to clarify that an environmental impact statement or negative declaration is to be prepared for any of the three situations enumerated under this general category.

Section 520.5(b), *Specific guidelines*, has been modified to reflect GM's comments, revised DOT Order 5640.1, and further determinations within the NHTSA. Subparagraphs (7)-(12) have been added and the original subparagraph (7) has been renumbered as (13). The agency has determined that these additional classes of actions should be enumerated in order to better identify those typical areas of environmental concern the NHTSA's activities may impact.

*Research activities.* In accordance with section 4 of final DOT Order 5610.1B, proposed implementing instructions for assessing the environmental consequences of research activities will be prepared by the Assistant Secretary of Systems Development and Technology, with the concurrence of the NHTSA. Until these final proce-

dures are promulgated, however, the guidelines set forth on this subject in the proposed procedures will be followed.

*Procedures.* The procedures subpart includes a number of additions and modifications. With respect to certain actions enumerated in Subpart A which may have an environmental significance, the official responsible for the action will prepare reviews that are much more comprehensive than the assessments proposed by the previous notice. He will conclude his review with a brief written report, to be included in the proposed or ongoing action, in which he will either recommend that a draft environmental impact statement (DEIS) be prepared to determine the environmental impact involved, or declare that the action would not have a significant effect on the quality of the environment. A review report that concludes with a "negative declaration" is not required to go through the extensive comment and review process provided for the DEIS, but it will be retained by the agency and made available to the public upon request.

Once an Associate Administrator, the Chief Counsel, or a Regional Administrator (in consultation with his Governor's Representative) determines, that an agency action under his jurisdiction requires the preparation of a DEIS, he will transmit a "notice of intent" to prepare the DEIS to the appropriate Federal, State, and local agencies and publish the notice in the *Federal Register*. In addition, a schedule of procedures and review will be developed in each case to assure completion of the DEIS before the first significant point of decision in the program or project development process. Once the

DEIS is circulated for review and comment, not less than 45 days in any case will be allowed for comment. A public hearing on a DEIS will be held when appropriate, and notice of the hearing will be issued in the *Federal Register* at least 30 days before the hearing. Final environmental impact statements (FEIS) will be prepared and distributed as soon as practicable after the expiration of the comment and hearing process.

In accordance with the final DOT order 5610.1B, a new section 520.34 has been added, establishing procedures for the review of environmental statements prepared by other agencies.

Four attachments having a direct bearing on the preparation of impact statements have been added to this issuance of the final rule and will be followed by this agency.

*Effective date:* November 4, 1975.

In consideration of the foregoing, a new Part 520, "Procedures for Considering Environmental Impacts," is added as § 520 of Title 49, Code of Federal Regulations. . . .

(Secs. 102(2)(A), 102(2)(C), Public Law 91-190, 83 Stat. 853 (42 U.S.C. 4332); secs. 2(b), 4(f), Public Law 89-670, 80 Stat. 931 (49 U.S.C. 1651(b), 1653(f)); Executive Order 11514, 35 FR 4247; 40 CFR Part 1500; DOT Order 5610.1B, 39 FR 35234; delegations of authority at 49 CFR 1.45, 1.51.)

Issued on Nov. 4, 1975.

James B. Gregory  
Administrator

**40 F.R. 52395**  
**November 10, 1975**

## PART 520—PROCEDURES FOR CONSIDERING ENVIRONMENTAL IMPACTS

### SUBPART A—GENERAL

Sec.

- 520.1 Purpose and scope.
- 520.2 Policy.
- 520.3 Definitions.
- 520.4 Applicability.
- 520.5 Guidelines for identifying major actions significantly affecting the environment.

### SUBPART B—PROCEDURES

- 520.21 Preparation of environmental reviews, negative declarations, and notices of intent.
- 520.22 Maintenance of list of actions.
- 520.23 Preparation of draft environmental impact statements.
- 520.24 Internal processing of draft environmental impact statements.
- 520.25 External review of draft environmental impact statements.
- 520.26 Public hearings.
- 520.27 Legislative actions.
- 520.28 Preparation of final environmental impact statements.
- 520.29 Internal review of final environmental impact statements.
- 520.30 Availability of final environmental impact statements.
- 520.31 Amendments or supplements.
- 520.32 Emergency action procedures.
- 520.33 Timing of proposed NHTSA actions.
- 520.34 Review of environmental statements prepared by other agencies.

Attachment 1—Form and content of statement.

Attachment 2—Areas of environmental impact and Federal agencies and Fed-

eral-State agencies with jurisdiction by law or special expertise to comment thereon.

Attachment 3—Offices within Federal Agencies and Federal-State agencies for information regarding the agencies' NEPA activities and for receiving other agencies' impact statements for which comments are requested.

Attachment 4—State and local agency review of impact statements.

### SUBPART A—GENERAL

#### § Purpose and scope.

(a) Section 102(2)(C) of the National Environmental Policy Act of 1969 (83 Stat. 853; 42 U.S.C. 4332(2)(C)), as implemented by Executive Order 11514 (3 CFR, 1966-1970 Comp., p. 902) and the Council on Environmental Quality's Guidelines of April 23, 1971 (36 F.R. 7724), requires that all agencies of the Federal Government prepare detailed environmental statements on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment. The purpose of the Act is to build into the agency decision-making process careful consideration of all environmental aspects of proposed actions.

(b) This part specifies National Highway Traffic Safety Administration (NHTSA) procedures for conducting environmental assessments and reviews, and for the preparation of environmental impact statements on proposals for legislation and other major agency actions significantly affecting the quality of the human environment.

#### § 520.0 Policy.

The agency will strive to carry out the full intent and purpose of the National Environmental Policy Act of 1969 and related orders and statutes, and take positive steps to avoid any

action which could adversely affect the quality of the human environment.

### § 520.3 Definitions.

(a) "Environmental assessment" is a written analysis describing the environmental impact of a proposed or ongoing agency action, submitted to the agency either by its grantees or contractors, or by any person outside the agency as part of any program or project proposal within the scope of activities listed in § 520.4(b).

(b) "Environmental review" is a formal evaluation undertaken by the agency, culminating in a brief document (the environmental review report), to determine whether a proposed or ongoing NHTSA action may have a significant impact on the environment. The review document will be included in the proposed or ongoing agency action, and either support a negative declaration or recommend the preparation of a draft environmental impact statement.

(c) "Draft environmental impact statement" (DEIS) means a preliminary statement on the environmental impact of a proposed or ongoing NHTSA action which is circulated for comment and review within and outside NHTSA.

(d) "Final environmental impact statement" (FEIS) means a detailed statement which, pursuant to section 102(2)(C) of the National Environmental Policy Act, identifies and analyzes the anticipated environmental impact of a proposed or ongoing NHTSA action.

(e) "Negative declaration" means a statement prepared subsequent to an environmental review, which states that a proposed or ongoing NHTSA action will have no significant environmental impact and therefore does not require a draft or final environmental impact statement.

### § 520.4 Applicability.

(a) *Scope.* This part applies to all elements of NHTSA, including the Regional Offices.

(b) *Actions covered.* Except as provided in subparagraph (e) below, this part applies to the following agency actions and such actions and proposals as may be sponsored jointly with another agency:

(1) New and continuing programs and projects; budget proposals; legislative proposals by the agency; requests for appropriations; re-

ports on legislation initiated elsewhere where the agency has primary responsibility for the subject matter involved; and any renewals or reapprovals of the foregoing;

(2) Research, development, and demonstration projects; formal approvals of work plans; and associated contracts;

(3) Rulemaking and regulatory actions, including Notices of Proposed Rulemaking (NPRM); requests for procurement (RFP); requests for grants (Annual Work Programs); and contracts;

(4) All grants, loans or other financial assistance for use in State and Community projects;

(5) Annual State Highway Safety Work Programs;

(6) Construction; leases; purchases; operation of Federal facilities; and

(7) Any other activity, project, or action likely to have a significant effect on the environment.

(c) *Continuing actions.* This part applies to any action enumerated in subsection (b) above, even though such action arise from a project or program initiated prior to enactment of the National Environmental Policy Act on January 1, 1970.

(d) *Environmental assessments.* Within the scope of activities listed in § 520.4(b), any person outside the agency submitting a program or project proposal may be requested to prepare an environmental assessment of such proposed action to be included in his submission to the agency.

(e) *Exceptions.*

(1) Assistance in the form of general revenue sharing funds, distributed under the State and Local Fiscal Assistance Act of 1972, 31 U.S.C. 1221, with no control by the NHTSA over the subsequent use of such funds;

(2) Personnel actions;

(3) Administrative procurements (e.g., general supplies) and contracts for personal services;

(4) Legislative proposals originating in another agency and relating to matters not



within NHTSA's primary areas of responsibility;

(5) Project amendments (e.g., increases in costs) which have no environmental significance; and

(6) Minor agency actions that are determined by the official responsible for the actions to be of such limited scope that they clearly will not have a significant effect on the quality of the human environment.

(f) *Consolidation of statements.* Proposed actions (and alternatives thereto) having substantially similar environmental impacts may be covered by a single environmental review and environmental impact statement or negative declaration.

#### **§ 520.5 Guidelines for identifying major actions significantly affecting the environment.**

(a) *General guidelines.* The phrase, "major Federal actions significantly affecting the quality of the human environment," as used in this part, shall be construed with a view to the overall, cumulative impact of the actions, other Federal projects or actions in the area, and any further contemplated or anticipated actions. Therefore, an environmental impact statement should be prepared in any of the following situations:

(1) Proposed actions which are localized in their impact but which have a potential for significantly affecting the environment;

(2) Any proposed action which is likely to be controversial on environmental grounds;

(3) Any proposed action which has unclear but potentially significant environmental consequences.

(b) *Specific guidelines.* While a precise definition of environmental significance that is valid in all contexts is not possible, any of the following actions should ordinarily be considered as significantly affecting the quality of the human environment:

(1) Any matter falling under section 4(f) of the Department of Transportation Act (49 U.S.C. 1653(f)) and section 138 of Federal-aid highway legislation (23 U.S.C. 138), requiring the use of any publicly owned land from a park, recreation area, or wildlife and

waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from an historic site of national, State, or local significance;

(2) Any matter falling under section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470(f)), requiring consideration of the effect of the proposed action on any building included in the National Register of Historic Preservation to comment on such action;

(3) Any action that is likely to affect the preservation and enhancement of sites of historical, architectural, or archaeological significance;

(4) Any action that is likely to be highly controversial regarding relocation housing;

(5) Any action that (i) divides or disrupts an established community, disrupts orderly, planned development, or is inconsistent with plans or goals that have been adopted by the community in which the project is located; or (ii) causes significantly increased congestion;

(6) Any action that (i) involves inconsistency with any Federal, State, or local law or administrative determination relating to the environmental; (ii) has a significantly detrimental impact on air or water quality or on ambient noise levels for adjoining areas; (iii) involves a possibility of contamination of a public water supply system; or (iv) affects ground water, flooding, erosion, or sedimentation;

(7) Any action that may directly or indirectly result in a significant increase in noise levels, either within a motor vehicle's closed environment or upon nearby areas;

(8) Any action that may directly or indirectly result in a significant increase in the energy or fuel necessary to operate a motor vehicle, including but not limited to the following: (i) actions which may directly or indirectly result in a significant increase in the weight of a motor vehicle; and (ii) actions which may directly or indirectly result in a significant adverse affect upon the aerodynamic drag of a motor vehicle;

(9) Any action that may directly or indirectly result in a significant increase in the amount of harmful emissions resulting from the operation of a motor vehicle;

(10) Any action that may directly or indirectly result in a significant increase in either the use of or the exposure to toxic or hazardous materials in the manufacture, operation, or disposal of motor vehicles or motor vehicle equipment.

(11) Any action that may directly or indirectly result in a significant increase in the problem of solid waste, as in the disposal of motor vehicles or motor vehicle equipment;

(12) Any action that may directly or indirectly result in a significant depletion of scarce natural resources associated with the manufacture or operation of motor vehicles or motor vehicle equipment; and

(13) Any other action that causes significant environment impact by directly or indirectly affecting human beings through adverse impacts on the environment.

*(c) Research activities.*

(1) In accordance with DOT Order 5610.1B, the Assistant Secretary for Systems Development and Technology (TST) will prepare, with the concurrence of the NHTSA, proposed procedures for assessing the environmental consequences of research activities. Until final procedures are promulgated, the following factors are to be considered for periodic evaluation to determine when an environmental statement is required for such programs:

(i) The magnitude of Federal investment in the program;

(ii) The likelihood of widespread application of the technology;

(iii) The degree of environmental impact which would occur if the technology were widely applied; and

(iv) The extent to which continued investment in the new technology is likely to restrict future alternatives.

(2) The statement or environmental review culminating in a negative declaration must be written late enough in the development process to contain meaningful information, but early

enough so that this information can practically serve as an input in the decision-making process. Where it is anticipated that an environmental impact statement may ultimately be required but its preparation is still premature, the office shall prepare a publicly available record briefly setting forth the reasons for its determination that a statement is not yet necessary. This record shall be updated at least quarterly, or as may be necessary when significant new information becomes available concerning the potential environmental impact of the program. In any case, a statement or environmental review culminating in a negative declaration must be prepared before research activities have reached a state of investment or commitment to implementation likely to determine subsequent development or restrict later alternatives. Statements on technology research and development programs shall include an analysis not only of alternative forms of the same technology that might reduce any adverse environmental impacts but also of alternative technologies that would serve the same function as the technology under consideration. Efforts shall be made to involve other Federal agencies and interested groups with relevant expertise in the preparation of such statements because the impacts and alternatives to be considered are likely to be less well defined than in other types of statements.

## **Subpart B—Procedures**

### **§ 520.21 Preparation of environmental reviews, negative declarations, and notices of intent.**

*(a) General responsibilities.*

(1) *Associate Administrators and Chief Counsel.* Each Associate Administrator and the Chief Counsel is responsible for determining, in accordance with Subpart A, whether the projects and activities under his jurisdiction require an environmental review, and for preparing all such reviews, negative declarations, and notices of intent.

(2) *Regional Administrators.* Each Regional Administrator, in consultation with the Governor's Representative, is responsible for determining, in accordance with Subpart A, whether proposed State activities in his Region, as stated in Annual Work Programs, require an environmental review, and for the preparation of all such reviews, negative declarations, and notices of intent.

(3) *Associate Administrator for Planning and Evaluation.* The Associate Administrator for Planning and Evaluation may request in accordance with the requirements of this order, that the appropriate Associate Administrator or Regional Administrator prepare an environmental review or environmental impact statement for any proposed or continuing NHTSA action, or comment on any environmental statement prepared by other agencies.

(b) *Coordination.* Coordination with appropriate local, State and Federal agencies should be accomplished during the early stages by the responsible official to assist in identifying areas of significance and concern. Existing procedures, including those established under the Office of Management and Budget (OMB) Revised Circular A-95, should be used to the greatest extent practicable to accomplish this early coordination.

(c) *Applicants.*

(1) Each applicant for a grant, loan, or other financial assistance for use in State and community projects may be requested to submit, with the original application, an environmental assessment of the proposed project.

(2) Under OMB Revised Circular A-95, "Evaluation, Review, and Coordination of Federal Assistance Programs and Projects," and DOT 4600.4B, "Evaluation, Review and Coordination of DOT Assistance Programs and Projects," dated February 27, 1974, a grant applicant must notify the clearinghouse of its intention to apply for Federal program assistance. The notification must solicit comments on the project and its impacts from appropriate State and local agencies. Since it is the NHTSA's policy to assure that (i) interested parties and Federal, State, and local agencies receive early notification of the decision to prepare an environmental impact statement, and

(ii) their comments on the environmental effects of the proposed Federal action are solicited at an early stage in the preparation of the draft impact statement, this early notification requirement may be met by a grant applicant by sending the notification to interested parties and agencies at the same time it is sent to the clearinghouse.

(d) *Consultants.* Consultants may prepare background or preliminary material and assist in preparing a draft or final environmental statement for which the NHTSA takes responsibility. Care should be exercised in selecting consultants, and in reviewing their work, to insure complete and objective consideration of all relevant project impacts and alternatives, particularly if the consultant may expect further contracts, based on the outcome of the environmental decision.

(e) *Environmental review report.* The environmental review shall culminate in a brief written report of the same title, which shall be included in the proposed or ongoing agency action, and which—

(1) Describes the proposed or ongoing NHTSA action, the environment affected, and the anticipated benefits;

(2) Evaluates the potential environmental impact, including those adverse impacts which cannot be avoided, should the proposal be implemented or the action continued;

(3) Assesses the alternatives to the proposed or ongoing action and their potential environmental impact.

(4) Evaluates the cumulative and long-term environmental effects of the proposed or ongoing action;

(5) Describes the irreversible and irretrievable commitments of resources involved in the proposal's implementation or the action's continuance;

(6) Identifies any known or potential conflicts with State, regional, or local plans and programs;

(7) Weighs and analyzes the anticipated benefits against the environmental and other costs of the proposed or ongoing action in a manner which reflects similar comparisons of reasonably available alternatives; and

(8) Concludes with a negative declaration or recommends the preparation of a DEIS.

(f) *Negative declarations.*

(1) If the responsible official judges that the environmental impact of a proposed or ongoing action under his jurisdiction will *not* significantly affect the quality of the human environment, the following declaration will be included in the environmental review report:

"It is the judgment of this agency, based on available information, that no significant environmental impact will result from execution of this action."

(2) A DEIS may be changed to a negative declaration if the public review process indicates that the proposal or ongoing action will not have a significant effect upon the environment.

(3) An index of all negative declarations and a copy of each environmental review report shall be retained by the responsible official under whose jurisdiction it was prepared and shall be made available for public inspection upon request.

(g) *Notice of intent to prepare a draft environmental impact statement.* If the responsible official under whose jurisdiction an environmental review is prepared determines that the proposed or ongoing action could have a potentially significant effect on the quality of the environment, he shall: coordinate with the Associate Administrator for Planning and Evaluation and the Chief Counsel, transmit to appropriate Federal, State and local agencies and have published in the *Federal Register* a notice of intent to prepare an environmental statement as soon as is practicable after the determination to prepare such a statement.

**§ 520.22 Maintenance of a list of actions.**

(a) The Associate Administrator for Planning and Evaluation shall be responsible for the preparation and maintenance of a list of actions for which draft or final environmental impact statements have been or are to be prepared. This list shall be on file with the Associate Administrator for Planning and Evaluation and shall be available for public inspection in the Docket

Section upon request. A copy of the initial list and its updates at the end of each calendar quarter shall be transmitted by the Associate Administrator for Planning and Evaluation to the Assistant Secretary of Transportation for Environmental and Safety (TES) and to CEQ.

(b) If a determination is made that an environmental statement is not necessary for a proposed action (1) which has been identified as normally requiring preparation of a statement, (2) which is similar to actions for which a significant number of statements have been prepared, (3) which the agency has previously announced would be the subject of a statement, or (4) for which the official responsible for such proposal has made a negative determination in response to a request from the CEQ, a record briefly setting forth the decision and the reasons for that determination shall be prepared by the responsible official. Such a record of negative determinations and any evaluations made pursuant to § 520.21 which conclude that preparation of a statement is not yet timely shall be prepared by the responsible official, submitted to the Associate Administrator for Planning and Evaluation, and made available by the Associate Administrator for Planning and Evaluation in the same manner as provided in paragraph (a) of this section for lists of statements under preparation.

**§ 520.23 Preparation of draft environmental impact statements.**

(a) *Planning stage.*

(1) When a DEIS is to be prepared, the responsible official shall promptly initiate its preparation and develop a schedule in consultation with the Associate Administrator for Planning and Evaluation, to assure completion prior to the first significant point of decision in the program or project development process.

(2) The environmental impacts of proposed activities should be initially assessed concurrently with the initial technical and economic studies.

(3) Section 102(2)(A) of NEPA requires each Federal agency to utilize a "systematic, interdisciplinary approach" to plans and programs affecting the environment. To assure that all environmental impacts are identified

and assessed, all relevant disciplines should be represented. If the necessary disciplines are not represented on the staff of the applicant or NHTSA, it is appropriate to use professional services available in other Federal, State or local agencies, universities, or consulting firms. The use of the interdisciplinary approach should not be limited to the environmental statement. This approach should also be used in the early planning stages to help assure a systematic evaluation of reasonable alternative courses of action and their potential social, economic, and environmental consequences.

(b) *Form and content requirements.* Attachment 1 of this order prescribes the form and content requirements to be followed for each draft and final environmental impact statement. The DEIS must fulfill and satisfy, to the fullest extent possible at the time it is prepared, the requirements established for final statements.

(c) *"Lead agency".* CEQ guidelines provide that when more than one Federal agency (1) directly sponsors an action, or is directly involved in an action through funding, licenses, or permits, or (2) is involved in a group of actions directly related to each other because of their functional interdependence and geographical proximity, consideration should be given to preparing one statement for all the Federal actions involved. Agencies in such cases should consider the designation of a single "lead agency" to assume supervisory responsibility for preparation of a joint statement. Where a lead agency prepares the statement, the other agencies involved should provide assistance with respect to their areas of jurisdiction and expertise. The statement should contain an evaluation of the full range of Federal actions involved, should reflect the views of all participating agencies, and should be prepared before major or irreversible actions have been taken by any of the participating agencies. Some relevant factors in determining an appropriate lead agency are: the time sequence in which the agencies become involved, the magnitude of their respective involvement, and their relative expertise with respect to the project's environmental effects.

Questions concerning "lead agency" decisions should be raised with CEQ through TES. For projects serving and primarily involving land owned by or under the jurisdiction of another Federal agency, that agency may be the appropriate lead agency.

(d) *Applicants.* Where the agency requests an applicant for financial assistance or other agency approval to submit an environmental assessment, the responsible official will (1) assist the applicant by outlining the information required, and (2) in all cases make his own evaluation of the environmental issues involved and take responsibility for the scope and content of draft and final environmental statements.

**§ 520.24 Internal processing of draft environmental impact statements.** Before circulating a DEIS for external review, the official responsible for the DEIS shall (1) receive the concurrence of the Associate Administrator for Planning and Evaluation and the Chief Counsel; and (2) prepare a memorandum for approval by the Administrator which shall—

(a) Set forth the basis on which it was determined that a potentially significant environmental effect exists;

(b) Attach the DEIS;

(c) Identify the Federal, State, and local agencies and private sources from which comments on the DEIS are proposed to be solicited (see Attachment 2); and

(d) Include a recommendation on whether a public hearing on the proposed action should be held.

**§ 520.25 External review of draft environmental impact statements.**

(a) *Requirements.* The official responsible for the DEIS shall—

(1) Transmit 5 copies of the DEIS to the CEQ and 2 copies to TES;

(2) Solicit comments from all Federal, State, and local agencies which have jurisdiction by law or special expertise with respect to the possible environmental impact involved, and from the public (see Attachment 2); and

(3) Inform the public and interested parties of the availability of the DEIS and provide copies as appropriate; and

(4) Allow a comment period of not less than 45 days from the Friday of the week following receipt of the draft impact statement by CEQ. Requests for extensions shall be granted whenever possible, and particularly when warranted by the magnitude and complexity of the statement or the extent of citizen interest.

(b) *Procedures.*

(1) *Federal and Federal-State agency review.*

(i) The DEIS shall be circulated for review to the Federal and Federal-State agencies with special expertise or jurisdiction by law with regard to the potential environmental impact involved. These agencies and their relevant areas of expertise are identified in Attachment 2.

(ii) For actions within the jurisdiction of the Environmental Protection Agency (air or water quality, solid wastes, pesticides, radiation standards, noise), the DEIS shall be sent to EPA.

(iii) For actions which would affect any property that is included in the National Register of Historic Preservation, the DEIS should be sent to the Advisory Council on Historic preservation and the State Liaison Office for Historic Preservation.

(2) *State and local review.* Where a review of the proposed action by State and local agencies authorized to develop and enforce environmental standards is relevant, comments are to be solicited directly from such agencies with known responsibilities in environmental matters, and shall be obtained as follows:

(i) Where review of direct Federal development projects, and of projects assisted under programs listed in Attachment D to revised OMB Circular A-95 (as implemented by DOT 4600.4B "Evaluation, Review and Coordination of DOT Assistance Programs and Projects", dated February 27, 1974), takes place prior to preparation of an environmental statement, comments of the reviewing agencies on the environmental effects of the proposed project are inputs to

the environmental statement. These comments shall be attached to the draft statement when it is circulated for review and copies of the draft shall be sent to those who commented. A-95 clearinghouses or other agencies designated by the Governor may also secure comments on environmental statements. In all cases, copies of the draft environmental statements shall be sent to clearinghouses and to the applicant whose project is the subject of the statement.

(ii) Comments shall be directly obtained from appropriate State and local agencies, except where review is secured by agreement through A-95 clearinghouses, unless the Governor of the appropriate State has designated some other point for obtaining his review. Instructions for obtaining the views of such agencies are contained in the joint OMB-CEQ memorandum (see Attachment 4). Comments shall be solicited from municipalities and counties on all projects located therein.

(iii) State and local review of NHTSA procedures, regulations, and policies for administering Federal programs of assistance to State and local governments shall be obtained pursuant to procedures established by OMB Circular No. A-85.

(iv) Generally, environmental statements on legislative and budget proposals may be excluded from State and local review.

(3) *General public receive.*

At the time the DEIS is circulated to Federal, State, and local agencies, public availability of the DEIS for comment and review will be announced by the CEQ in the *Federal Register*. Copies of the DEIS should be sent to known interested parties, and press releases should be sent to local news media advising where the DEIS is available and how copies may be obtained. The Office of Public Affairs and Consumer Services shall maintain a list of groups, including conservation organizations and motor vehicle manufacturers, known to be interested in the agency's activities, and directly notify such groups of the availability of the DEIS or send them a copy as soon as it has been prepared.

(ii) A DEIS should be available to the public at least 30 days prior to the time of a public hearing on the DEIS.

(iii) Copies of the DEIS will be made available at the NHTSA Docket Section, Room 5108, 400 Seventh Street, S.W., Washington, D.C. 20590, and, where appropriate, NHTSA Regional Offices, at the offices of any applicants or grantees, at appropriate State, regional, and metropolitan clearing houses, and local public libraries, and furnished to public and private organizations and individuals with special expertise with respect to the potential environmental impact involved, and to those with an interest in the action who request an opportunity to comment. Copies to be made available to the public shall be provided without charge to the extent practicable, or at a fee which is not more than the actual cost of reproducing copies required to be sent to other Federal agencies, including the CEQ.

(iv) A copy of the DEIS should in all cases be sent to any applicant whose project is the subject of the statement.

(v) If a DEIS is changed to a negative declaration as a result of the public review process, all agencies and individuals that received copies and/or commented on the DEIS must be informed that a negative declaration was substituted for the DEIS and given a brief explanation of the reason for such substitution.

**(c) Utilization of Comments.**

Comments received on the draft statement, and inputs (in summary form, if appropriate) from the processes for citizen participation, shall accompany the environmental statement through the normal internal project or program review process.

**§ 520.26 Public hearings.**

(a) A public hearing on a proposed or ongoing action covered by a DEIS shall be held upon the determination by the official responsible for such action, in consultation with the Associate Administrator for Planning and Evaluation, that a public hearing would be appropriate and in the public interest. In deciding whether a public

hearing is appropriate, the responsible official should consider—

(1) The magnitude of the proposal in terms of economic costs, the geographic area involved, and the uniqueness or size of the commitment of the resources involved.

(2) The degree of interest in the proposal, as evidenced by requests from the public and from Federal, State, and local authorities that a hearing be held;

(3) The likelihood that information will be presented at the hearing which will be of assistance to the agency in fulfilling its responsibilities under the NEPA;

(4) The extent to which public involvement already has been achieved through other means, such as earlier public hearings, meetings with citizen representatives, and/or written comments on the proposed action; and

(5) The extent of potential environmental impact.

(b) If it is determined that a public hearing is to be held in accordance with paragraph (a) of this section, the official responsible for the action shall both announce the hearing through newspaper articles, direct notification to interested parties, and clearinghouses, and cause a notice to be issued in the *Federal Register* at least 30 days prior to the time of such hearing—

(1) Identifying the subject matter of the hearing;

(2) Announcing the date, time, and place of the hearing and the procedures to be followed; and

(3) Announcing the availability of the DEIS and any other information, as appropriate, for public inspection at one or more locations in the area affected by the action.

**§ 520.27 Legislative actions.**

(a) A DEIS on both legislative proposals and reports for which NHTSA either develops the Departmental position or originates the legislation will be cleared with TES, filed with CEQ, and submitted to the Office of Management and Budget through the normal DOT and NHTSA legislative process.

(b) The preparation, circulation, and filing of the environmental statement shall be in accordance with OMB Bulletin 72-6, "Proposed Federal Actions Affecting the Environment."

(c) A DEIS and any comments that have been received should be available to the Congress and to the public for consideration in connection with the proposed legislation or report on proposed legislation. In cases where the scheduling of Congressional hearings on recommendations or reports on proposals for legislation which the Department has forwarded to the Congress does not allow adequate time for the completion of a FEIS, a DEIS may be furnished to the Congress and made available to the public pending transmittal of the comments as received and the final text.

#### **§ 520.28 Preparation of final environmental impact statements.**

(a) If the action is to go forward and the DEIS has not been changed to a negative declaration, as soon as practicable after the expiration of the comment period and hearing process, if any, the official responsible for the action shall prepare a final environmental impact statement (FEIS), taking into account all comments received and issues raised during such period and process.

(b) The FEIS shall conform to the guidelines for form and content in Attachment 1.

(c) The FEIS shall then be submitted to the Chief Counsel by the official responsible for the action, for determination of legal sufficiency.

#### **§ 520.29 Internal review of final environmental impact statements.**

(a) Upon completion of the review for legal sufficiency of the FEIS, the Chief Counsel shall transmit 2 copies of the FEIS to TES for concurrence. Unless other notification is provided within 2 weeks after receipt in TES, the statement will be considered concurred in by TES.

(b) After concurrence by TES, the FEIS will be transmitted by the Chief Counsel to the Administrator for approval.

(c) If an action requires the personal approval of the Secretary or Deputy Secretary pursuant to a request by them or by TES, TGC, or the NHTSA office originating the action, the final environmental statement shall be accompanied by a brief cover memorandum requesting the Secretary's or Deputy Secretary's approval of the action.

(1) The memorandum shall have signature lines for the concurrence of the Assistant Secretary for Environment, Safety, and Consumer Affairs, the General Counsel, and the Deputy Secretary, and for the approval of the Secretary or Deputy Secretary.

(2) TES, in conjunction with the Executive Secretary, is responsible for informing the Assistant Secretary for Congressional and Intergovernmental Affairs and the Office of Public Affairs of the Secretary's decisions so that they, in coordination with the operating administrations or other Secretarial Offices involved, may take the appropriate actions.

#### **§ 520.30 Availability of final environmental impact statements.**

(a) Pending final approval and filing with CEQ, a proposed FEIS may be made available to the public and Federal, State, or local agencies if it carries a notation that it is not approved and filed.

(b) After approval by the Administrator, the Associate Administrator for Planning and Evaluation will send 5 copies of the FEIS (together with comments) to the CEQ; individual copies with comments attached to the EPA and all Federal, State, and local agencies and members of the public who submitted comments on the DEIS or requested copies of the FEIS. If the length of the statement or the number of comments make this distribution requirement highly impractical, TES should be consulted to consider an alternative arrangement.

(c) Copies of the FEIS will be made available in the NHTSA Docket Section, Room 5108, 400 Seventh Street, S.W., Washington, D.C. 20590, and, where appropriate, NHTSA Regional Offices, at the offices of any applicants or grantees, and at appropriate State, regional, and metropolitan clearinghouses and, where the impact is localized, public libraries.



(d) The official responsible for the action shall, upon request, make available copies of the FEIS and substantive comments received on the DEIS without charge to the extent practicable, or at a fee which is not more than the actual cost or reproducing copies.

**§ 520.31 Amendments or supplements.** A draft or final environmental impact statement may be amended or supplemented. Supplements or amendments should be considered when substantial changes are made in the proposed or ongoing action that will introduce a new or changed environmental effect of significance to the quality of the environment, or significant new information becomes available concerning its environmental aspects. In such cases, the supplement or amendment shall be processed in consultation with TES with respect to the need for, or desirability of, recirculating the statement for the appropriate period. TES concurrence must be secured before issuance.

**§ 520.32 Emergency action procedures.** The CEQ Guidelines allow modification of requirements in case of a national emergency, a disaster or similar great urgency. The processing times may be reduced, or if the emergency situation warrants, preparation and processing of a DEIS, FEIS, or negative declaration may be abbreviated. Such procedural changes, however, should be requested only for those projects where the need for immediate action requires processing in other than the normal manner.

**§ 520.33 Trimming of proposed NHTSA actions.** To the maximum extent practicable, no administrative action (i.e., any proposed action to be taken by the agency other than agency proposals for legislation to Congress, budget proposals, or agency reports on legislation) subject to this part and covered by an environmental impact statement shall be taken sooner than 90 days after a DEIS has been circulated for comment, furnished to the CEQ, and made public. Neither shall such administrative action be taken sooner than 30 days after the FEIS (together with

comments) has been filed with CEQ, and made available to commenting agencies and the public. If the FEIS is filed within 90 days after a DEIS has been circulated for comment, furnished to the CEQ and made public, the 30-day period and 90-day period may run concurrently to the extent that they overlap. The 90-day time period is measured from the date of publication in the *Federal Register* of the list of weekly filings of environmental impact statements with the CEQ, but the 30-day period is computed from the date of receipt by the CEQ.

**§ 520.34 Comments on environmental statements prepared by other agencies.**

(a) All requests for NHTSA's views on a DEIS or a proposed action undergoing environmental review by another agency will be transmitted to the Associate Administrator for Planning and Evaluation for action or referral to TES where appropriate. Offices within NHTSA may be requested by the Associate Administrator for Planning and Evaluation to supply any pertinent information and comments for a coordinated agency response.

(b) NHTSA's comments and the comments of any offices responding to a request by the Associate Administrator for Planning and Evaluation should be organized in a manner consistent with the structure of an environmental review set out in § 520.21(e). NHTSA programs that are environmentally related to the proposed action under review should be identified so interrelationships may receive due consideration.

(c) Copies of NHTSA's comments on environmental statements prepared by other agencies shall be distributed as follows:

(1) The original and 1 copy to the requesting agency;

(2) 1 copy to TES-70; and

(3) 5 copies to CEQ.

(d) Requests by the public for copies should be referred to the agency originating the statement.

## ATTACHMENT 1

### FORM AND CONTENT OF STATEMENT

1. Form. a. Each statement will be headed as follows:

DEPARTMENT OF  
TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC  
SAFETY ADMINISTRATION

(Draft) Environmental Impact Statement Pursuant to section 102(2) (C), Pub. L. 91-190; 83 Stat. 853; 42 U.S.C. 4332(2) (C).

b. The heading specified above shall be modified to indicate that the statement also covers sections 4(f) of the DOT Act or 106 of the National Historic Preservation Act, when appropriate.

c. Each statement will, as a minimum, contain sections corresponding to paragraph 3 herein, supplemented as necessary to cover other matters provided in this Attachment.

d. The format for the summary to accompany draft and final environmental statements is as follows:

#### SUMMARY

(Check one)      ☐ Draft      ☐ Final

Department of Transportation, National Highway Traffic Safety Administration. Name, address, and telephone number of individual who can be contacted for additional information about the proposed action or the statement. (Note: DOT Order 2100.2 prescribed procedure for reporting public contacts in rulemaking.)

(1) Name of Action. (Check one) ☐ Administrative Action. ☐ Legislative Action.

(2) Brief description of action indicating what States (and counties) are particularly affected.

(3) Summary of environmental impact and adverse environmental effects.

(4) List alternatives considered.

(5) (a) (For draft statements) List all Federal, State, and local agencies from which comments have been requested.

(b) (For final statements) List all Federal, State, and local agencies and other sources from which written comments have been received.

(6) Dates the draft statement and the final statement, if issued, were made available to the Council on Environmental Quality and the public.

2. Guidance as to content of statement. The following paragraphs of this Attachment are intended to be considered, where relevant, as guidance regarding the content of environmental statements. This guidance is expected to be supplemented by research reports, guidance on methodology, and other material from the literature as may be pertinent to evaluation of relevant environmental factors.

3. General content. The following points are to be covered:

a. A description of the proposed Federal action (e.g., "The proposed Federal action is approval of a grant application to construct \* \* \*"), a statement of its purpose, and a description of the environment affected, including information, summary technical data, and maps and diagrams where relevant, adequate to permit an assessment of potential environmental impact by commenting offices and the public.

(1) Highly technical and specialized analyses and data should generally be avoided in the body of the draft impact statement. Such materials should be appropriately summarized in the body of the environmental statement and attached as appendices or footnoted with adequate bibliographic references.

(2) The statement should succinctly describe the environment of the area affected as it exists prior to a proposed action, including other related Federal activities in the area, their interrelationships, and cumulative environmental impact. The amount of detail provided in such descriptions should be commensurate with the extent and expected impact of the action, and with the amount of information required at the particular level of decision making (planning, feasibility, design, etc.). In order to insure ac-

curate descriptions and environmental considerations, site visits should be made where appropriate.

(3) The statement should identify, as appropriate, population and growth characteristics of the affected area and any population and growth assumptions used to justify the project or program or to determine secondary population and growth impacts resulting from the proposed action and its alternatives (see paragraph 3c(2)). In discussing these population aspects, the statement should give consideration to using the rates of growth in the region of the project contained in the projection compiled for the Water Resources Council by the Bureau of Economic Analysis of the Department of Commerce and the Economic Research Service of the Department of Agriculture (the OBERS projection).

(4) The sources of data used to identify, quantify, or evaluate any or all environmental consequences must be expressly noted.

b. The relationship of the proposed action and how it may conform to or conflict with adopted or proposed land use plans, policies, controls, and goals and objectives as have been promulgated by affected communities. Where a conflict or inconsistency exists, the statement should describe the extent of reconciliation and the reasons for proceeding notwithstanding the absence of full reconciliation.

c. The probable impact of the proposed action on the environment. (1) This requires assessment of the positive and negative effects of the proposed action as it affects both national and international human environment. The attention given to different environmental factors will vary according to the nature, scale, and location of proposed actions. Among factors to be considered should be the potential effect of the action on such aspects of the environment as those listed in Attachment 2, and in section 520.5(b), *supra*. Primary attention should be given in the statement to discussing those factors most evidently impacted by the proposed action.

(2) Secondary and other foreseeable effects, as well as primary consequences for the

environment, should be included in the analysis. Secondary effects, such as the impact on fuel consumption, emissions, or noise levels of automobiles or in the use of toxic or scarce materials, may be more substantial than the primary effects of the original action.

d. Alternatives to the proposed action, including, where relevant, those not within the existing authority of the responsible preparing office. Section 102(2)(D) of NEPA requires the responsible agency to "study, develop, and describe appropriate alternatives to recommend courses concerning alternative uses of available resources..". A rigorous exploration and an objective evaluation of the environmental impacts of all reasonable alternative actions, particularly those that might enhance environmental quality or avoid some or all of the adverse environmental effects, are essential. Sufficient analysis of such alternatives and their environmental benefits, costs, and risks should accompany the proposed action through the review process in order not to foreclose prematurely options which might enhance environmental quality or have less detrimental effects. Examples of such alternatives include: the alternative of not taking action or of postponing action pending further study; alternatives requiring actions of a significantly different nature which would provide similar benefits with different environmental impacts, e.g., low capital intensive improvements, mass transit alternatives to highway construction; alternatives related to different locations or designs or details of the proposed action which would present different environmental impacts. In each case, the analysis should be sufficiently detailed to reveal comparative evaluation of the environmental benefits, costs, and risks of the proposed action and each reasonable alternative. Where an existing impact statement already contains such an analysis its treatment of alternatives may be incorporated, provided such treatment is current and relevant to the precise purpose of the proposed action.

e. Any probable adverse environmental effects which cannot be avoided (such as water or air pollution, noise, undesirable land use

patterns, or impacts on public parks and recreation areas, wildlife and waterfowl refuges, or on historic sites, damage to life systems, traffic congestion, threats to health, or other consequences adverse to the environmental goals set out in section 101(b) of NEPA). This should be a brief section summarizing in one place those effects discussed in paragraph 3c that are adverse and unavoidable under the proposed action. Included for purposes of contract should be a clear statement of how all adverse effects will be mitigated. Where mitigating steps are included in the statement, the responsible official shall see that they are carried out.

f. The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity. This section should contain a brief discussion of the extent to which the proposed action involves tradeoffs between short-term environmental gains at the expense of long-term losses, or vice versa, and a discussion of the extent to which the proposed action forecloses future options.

g. Any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented. This requires identification of unavoidable impacts and the extent to which the action irreversibly curtails the range of potential uses of the environment. "Resources" means not only the labor and materials devoted to an action but also the natural and cultural resources lost or destroyed.

h. An indication of what other interests and considerations of Federal policy are thought to offset the adverse environmental effects of the proposed action identified pursuant to subparagraphs (c) and (e) of this paragraph. The statement should also indicate the extent to which these stated countervailing benefits could be realized by following reasonable alternatives to the proposed action (as identified in subparagraph (d) of this paragraph) that would avoid some or all of the adverse environmental effects. In this connection if a cost-benefit analysis of the proposed action has been prepared, it, or a summary, should be attached

to the environmental impact statement, and should clearly indicate the extent to which environmental costs have not been reflected in such analysis.

i. A discussion of problems and objections raised by other Federal agencies, State and local entities, and citizens in the review process, and the disposition of the issues involved and the reasons therefor. (This section shall be added to the final environmental statement at the end of the review process.)

(1) The draft and final statements should document issues raised through consultations with Federal, State, and local agencies with jurisdiction or special expertise and with citizens, of actions taken in response to comments, public hearings, and other citizens involvement proceedings.

(2) Any unresolved environmental issues and efforts to resolve them, through further consultations or otherwise, should be identified in the final statement. For instance, where an agency comments that the statement has inadequate analysis or that the agency has reservations concerning the impacts, or believes that the impacts are too adverse for approval, either the issue should be resolved or the final statement should reflect efforts to resolve the issue and set forth any action that will result.

(3) The statement should reflect that every effort was made to discover and discuss all major points of view on the environmental effects of the proposed action and alternatives in the draft statement. However, where opposing professional views and responsible opinion have been overlooked in the draft statement and are raised through the commenting process, the environmental effects of the action should be reviewed in light of those views. A meaningful reference should be made in the final statement to the existence of any responsible opposing view not adequately discussed in the draft statement indicating responses to the issues raised.

(4) All substantive comments received on the draft (or summaries of responses from the public which have been exceptionally

voluminous) should be attached to the final statement, whether or not such comment is thought to merit individual discussion in the text of the statement.

j. Draft statements should indicate at appropriate points in the text any underlying studies, reports, and other information obtained and considered in preparing the statement, including any cost-benefit analyses prepared. In the case of documents not likely to be easily accessible (such as internal studies or reports), the statement should indicate how such information may be obtained. If such information is attached to the statement, care should be taken to insure that the statement remains an essentially self-contained instrument, capable of being understood by the reader without the need for undue cross reference.

4. Publicly owned parklands, recreational areas, wildlife and waterfowl refuges and historic sites. The following points are to be covered:

a. Description of "any publicly owned land from a public park, recreational area of wildlife and waterfowl refuge" or "any land from an historic site" affected or taken by the project. This includes its size, available activities, use, patronage, unique or irreplaceable qualities, relationship to other similarly used lands in the vicinity of the project, maps, plans, slides, photographs, and drawings showing a sufficient scale and detail the project. This also includes its impact on park, recreation, wildlife, or historic areas, and changes in vehicular or pedestrian access.

b. Statement of the "national, State or local significance" of the entire park, recreational area, refuge, or historic site "as determined by the Federal, State or local officials having jurisdiction thereof."

(1) In the absence of such a statement lands will be presumed to be significant. Any statement of "insignificance" by the official having jurisdiction is subject to review by the Department as to whether such statement is capricious.

(2) Where Federal lands are administered for multiple uses, the Federal official having jurisdiction over the lands shall determine whether the subject lands are in fact being

used for park, recreation, wildlife, waterfowl, or historic purposes.

c. Similar data, as appropriate, for alternative designs and locations, including detailed cost estimates (with figures showing percentage differences in total project costs) and technical feasibility, and appropriate analyses of the alternatives, including any unique problems present and evidence that the cost or community disruptions resulting from alternative routes reach extra-ordinary magnitudes. This portion of the statement should demonstrate compliance with the Supreme Court's statement in the Overton park case, as follows:

[The] very existence of the statute indicates that protection of parkland was to be given paramount importance. The few green havens that are public parks were not to be lost unless there were truly unusual factors present in a particular case or the cost or community disruption resulting from alternative routes reached extraordinary magnitudes. If the statutes are to have any meaning, the Secretary cannot approve the destruction of parkland unless he finds that alternative routes present unique problems. 401 U.S. 402, 412 (1971).

d. If there is no feasible and prudent alternative, a description of all planning undertaken to minimize harm to the protected area and statement of actions taken or to be taken to implement this planning, including measures to maintain or enhance the natural beauty of the lands traversed.

(1) Measures to minimize harm may include replacement of land and facilities, providing land or facilities, provisions for functional replacement of the facility (see 49 CFR 25.267).

(2) Design measures to minimize harm; e.g., tunneling, cut and cover, cut and fill, treatment of embankments, planting, screening, maintenance of pedestrian or bicycle paths and noise mitigation measures all reflecting utilization of appropriate interdisciplinary design personnel.

e. Evidence of concurrence or description of efforts to obtain concurrence of Federal, State or local officials having jurisdiction over the

section 4(f) property regarding the action proposed and the measures planned to minimize harm.

f. If Federally-owned properties are involved in highway projects, the final statement shall include the action taken or an indication of the expected action after filing a map of the proposed use of the land or other appropriate documentation with the Secretary of the Department supervising the land (23 U.S.C. 317).

g. If land acquired with Federal grant money (Department of Housing and Urban Development open space or Bureau of Outdoor Recreation land and water conservation funds) is involved, the final statement shall include appropriate communications with the grantor agency.

h. TGC will determine application of section 4(f) to public interests in lands, such as easements, reversions, etc.

i. A specific finding by the Administrator that there is no feasible and prudent alternative and that the proposal includes all possible planning to minimize harm to the "4(f) area" involved.

5. Properties and sites of historic and cultural significance. The statement should document actions taken to preserve and enhance districts, sites, buildings, structures, and objects of historical, architectural, archeological, or cultural significance affected by the action.

a. Draft environmental statements should include identification, through consulting the National Register and applying the National Register Criteria (36 CFR Part 800), of properties that are included in or eligible for inclusion in the National Register of Historic Places that may be affected by the project. The National Register is published in its entirety each February in the Federal Register. Monthly additions and listings of eligible properties are published in the Federal Register the first Tuesday of each month. The Secretary of the Interior will advise, upon request, whether properties are eligible for the National Register.

b. If application of the Advisory Council on Historic Preservation's (ACHP) Criteria of Effect (36 CFR Part 800) indicates that the project will have an effect upon a property included in or eligible for inclusion in the National Register of Historic Places, the Draft environmental statement should document the effect. Evaluation of the effect should be made in consultation with the State Historic preservation Officer (SHPO) and in accordance with the ACHP's criteria of Adverse Effect (36 CFR Part 800).

c. Determinations of no adverse effect should be documented in the draft statement with evidence of the application of the ACHP's Criteria of Adverse Effect, the views of the appropriate State Historic Preservation Officer, and submission of the determination to the ACHP for review.

d. If the project will have an adverse effect upon a property included in or eligible for inclusion in the National Register of Historic Places, the final environmental statement should include either an executed Memorandum of Agreement or comments from the Council after consideration of the project at a meeting of the ACHP and an account of actions to be taken in response to the comments of the ACHP. Procedures for obtaining a Memorandum of Agreement and the comments of the Council are found in 36 CFR Part 800.

e. To determine whether the project will have an effect on properties of State or local historical, architectural, archaeological, or cultural significance not included in or eligible for inclusion in the National Register, the responsible official should consult with the State Historic Preservation Officer, with the local official having jurisdiction of the property, and where appropriate, with historical societies, museums, or academic institutions having expertise with regard to the property. Use of land from historic properties of Federal, State and local significance as determined by the official having jurisdiction thereof involves section 4(f) of the DOT Act and documentation should include information necessary to consider a 4(f) determination (see paragraph 4).

6. Impacts of the proposed action on the human environment involving community disruption include a description.

a. The statement should include a description of probable impact sufficient to enable an understanding of the extent of the environmental and social impact of the project alternatives and to consider whether relocation problems can be properly handled. This would include the following information obtainable by visual inspection of the proposed affected area and from secondary sources and community sources when available.

(1) An estimate of the households to be displaced including the family characteristics (e.g., minorities, and income levels, tenure, the elderly, large families).

(2) Impact on the human environment of an action which divides or disrupts an established community, including where pertinent, the effect of displacement on types of families and individuals affected, effect of streets cut off, separation of residences from community facilities, separation of residential areas.

(3) Impact on the neighborhood and housing to which relocation is likely to take place (e.g., lack of sufficient housing for large families, doublings up).

(4) An estimate of the businesses to be displaced, and the general effect of business dislocation on the economy of the community.

(5) A discussion of relocation housing in the area and the ability to provide adequate relocation housing for the types of families to be displaced. If the resources are insufficient to meet the estimated displacement needs, a description of the actions proposed to remedy this situation including, if necessary, use of housing of last resort.

(6) Results of consultation with local officials and community groups regarding the impacts to the community affected. Relocation agencies and staff and other social agencies can help to describe probable social impacts of this proposed action.

(7) Where necessary, special relocation advisory services to be provided the elderly, handicapped and illiterate regarding inter-

pretations of benefits, assistance in selecting replacement housing and consultation with respect to acquiring, leasing, and occupying replacement housing.

b. This data should provide the preliminary basis for assurance of the availability of relocation housing as required by DOT 5620.1, Replacement Housing Policy, dated June 24, 1970, and 49 CFR 25.53.

7. Considerations relating to pedestrians and bicyclists. Where appropriate, the statement should discuss impacts on, and consideration to be given in the development of the project to pedestrian and bicycle access, movement and safety within the affected area, particularly in medium and high density commercial and residential areas.

8. Other social impacts. The general social groups specially benefitted or harmed by the proposed action should be identified in the statement including the following:

a. Particular effects of a proposal on the elderly, handicapped, non-drivers, transit dependent, or minorities should be described to the extent reasonably predictable.

b. How the proposal will facilitate or inhibit their access to jobs, educational facilities, religious institutions, health and welfare services, recreational facilities, social and cultural facilities, pedestrian movement facilities, and public transit services.

9. Standards as to noise, air, and water pollution. The statement shall reflect sufficient analysis of the effects of the proposed action on attainment and maintenance of any environmental standards established by law or administrative determination (e.g., noise, ambient air quality, water quality) including the following documentation:

a. With respect to water quality, there should be consultation with the agency responsible for the State water pollution control program as to conformity with standards and regulations regarding storm sewer discharge sedimentation control, and other non-point source discharges.

b. The comments or determinations of the offices charged with administration of the State's implementation plan for air quality as

to the consistency of the project with State plans for the implementation of ambient air quality standards.

c. Conformity to adopted noise standards, compatible if appropriate, with different land uses.

10. Energy supply and natural resources development. Where applicable, the statement should reflect consideration of whether the project or program will have any effect on either the production or consumption of energy and other natural resources, and discuss such effects if they are significant.

11. Flood hazard evaluation. When an alternative under consideration encroaches on a flood plain, the statement should include evidence that studies have been made and evidence of consultations with agencies with expertise have been carried out. Necessary measures to handle flood hazard problems should be described. In compliance with Executive Order 11296, and Flood Hazard Guidelines for Federal Executive Agencies, promulgated by the Water Resources Council, or how such requirements can be met during project development.

12. Considerations relating to wetlands or coastal zones. Where wetlands or coastal zones are involved, the statement should include:

a. Information on location, types, and extent of wetlands areas which might be affected by the proposed action.

b. An assessment of the impacts resulting from both construction and operation of the project on the wetlands and associated wildlife, and measures to minimize adverse impacts.

c. A statement by the local representative of the Department of the Interior, and any other

responsible officials with special expertise, setting forth his views on the impacts of the project on the wetlands, the worth of the particular wetlands areas involved to the community and to the Nation, and recommendations as to whether the proposed action should proceed, and, if applicable, along what alternative route.

d. Where applicable, a discussion of how the proposed project relates to the State coastal zone management program for the particular State in which the project is to take place.

13. Construction impacts. In general, adverse impacts during construction will be of less importance than long-term impacts of a proposal. Nonetheless, statements should appropriately address such matters as the following, identifying any special problem areas:

a. Noise impacts from construction and any specifications setting maximum noise levels.

b. Disposal of spoil and effect on borrow areas and disposal sites (include specifications where special problems are involved).

c. Measures to minimize effects on traffic and pedestrians.

14. Land use and urban growth. The statement should include, to the extent relevant and predictable:

a. The effect of the project on land use, development patterns, and urban growth.

b. Where significant land use and development impacts are anticipated, identify public facilities needed to serve the new development and any problems or issues which would arise in connection with these facilities, and the comments of agencies that would provide these facilities.



## ATTACHMENT 2

### AREAS OF ENVIRONMENTAL IMPACT AND FEDERAL AGENCIES AND FEDERAL-STATE AGENCIES<sup>1</sup> WITH JURISDICTION BY LAW OR SPECIAL EXPERTISE TO COMMENT THEREON<sup>2</sup>

#### AIR

##### *Air Quality*

Department of Agriculture—  
Forest Service (effects on vegetation)

Atomic Energy Commission (radioactive substances)

Department of Health, Education, and Welfare  
Environmental Protection Agency

Department of the Interior—  
Bureau of Mines (fossil and gaseous fuel combustion)  
Bureau of Sport Fisheries and Wildlife (effect on wildlife)  
Bureau of Outdoor Recreation (effect on recreation)  
Bureau of Land Management (public lands)  
Bureau of Indian Affairs (Indian lands)

National Aeronautics and Space Administration (remote sensing, aircraft emissions)

Department of Transportation—  
Assistant Secretary for Systems Development and Technology (auto emissions)  
Coast Guard (vessel emissions)  
Federal Aviation Administration (aircraft emissions)

<sup>1</sup> River Basin Commissions (Delaware, Great Lakes, Missouri, New England, Ohio, Pacific Northwest, Souris-Red-Rainy, Susquehanna, Upper Mississippi) and similar Federal-State agencies should be consulted on actions affecting the environment of their specific geographic jurisdictions.

<sup>2</sup> In all cases where a proposed action will have significant international environmental effects, the Department of State should be consulted, and should be sent a copy of any draft and final impact statement which covers such action.

#### *Weather Modification*

Department of Agriculture—  
Forest Service

Department of Commerce  
National Oceanic and Atmospheric Administration

Department of Defense—  
Department of the Air Force

Department of the Interior  
Bureau of Reclamation

#### WATER RESOURCES COUNCIL

##### WATER *Water Quality*

Department of Agriculture—  
Soil Conservation Service  
Forest Service

Atomic Energy Commission (radioactive substances)

Department of the Interior—  
Bureau of Reclamation  
Bureau of Land Management (public lands)  
Bureau of Indian Affairs (Indian lands)  
Bureau of Sport Fisheries and Wildlife  
Bureau of Outdoor Recreation  
Geological Survey  
Office of Saline Water

Environmental Protection Agency

Department of Health, Education, and Welfare

Department of Defense—  
Army Corps of Engineers  
Department of the Navy (ship pollution control)

National Aeronautics and Space Administration (remote sensing)

Department of Transportation—  
Coast Guard (oil spills, ship sanitation)

Department of Commerce—  
National Oceanic and Atmospheric Administration

Water Resources Council  
River Basin Commissions (as geographically appropriate)

*Marine Pollution, Commercial Fishery  
Conservation, and Shellfish Sanitation*

Department of Commerce—  
National Oceanic and Atmospheric Administration

Department of Defense—  
Army Corps of Engineers  
Office of the Oceanographer of the Navy

Department of Health, Education, and Welfare

Department of the Interior—  
Bureau of Sport Fisheries and Wildlife  
Bureau of Outdoor Recreation  
Bureau of Land Management (outer continental shelf)  
Geological Survey (outer continental shelf)

Department of Transportation—  
Coast Guard

Environmental Protection Agency

National Aeronautics and Space Administration (remote sensing)

Water Resources Council

River Basin Commissions (as geographically appropriate)

*Waterway Regulation and Stream  
Modification*

Department of Agriculture—  
Soil Conservation Service

Department of Defense—  
Bureau of Reclamation  
Army Corps of Engineers

Department of the Interior—  
Bureau of Sport Fisheries and Wildlife  
Bureau of Outdoor Recreation  
Geological Survey

Department of Transportation—  
Coast Guard

Environmental Protection Agency

National Aeronautics and Space Administration (remote sensing)

Water Resources Council

River Basin Commissions (as geographically appropriate)

FISH AND WILDLIFE

Department of Agriculture  
Forest Service  
Soil Conservation Service

Department of Commerce—  
National Oceanic and Atmospheric Administration (marine species)

Department of the Interior—  
Bureau of Sport Fisheries and Wildlife  
Bureau of Land Management  
Bureau of Outdoor Recreation

Environmental Protection Agency

SOLID WASTE

Atomic Energy Commission (radioactive waste)

Department of Defense—  
Army Corps of Engineers

Department of Health, Education, and Welfare

Department of the Interior—  
Bureau of Mines (mineral waste, mine acid waste, municipal solid waste, recycling)  
Bureau of Land Management (public lands)  
Bureau of Indian Affairs (Indian lands)  
Geological Survey (geologic and hydrologic effects)  
Office of Saline Water (demineralization)

Department of Transportation—  
Coast Guard (ship sanitation)

Environmental Protection Agency

River Basin Commissions (as geographically appropriate)

Water Resources Council

NOISE

Department of Commerce—  
National Bureau of Standards

Department of Health, Education, and Welfare

Department of Housing and Urban Development (land use and building materials aspects)

Department of Labor—  
Occupational Safety and Health Administration

Department of Transportation—  
 Assistant Secretary for Systems Development  
 and Technology  
 Environmental Protection Agency  
 Federal Aviation Administration, Office of  
 Noise Abatement  
 National Aeronautics and Space Administration

#### RADIATION

Atomic Energy Commission  
 Department of Commerce—  
 National Bureau of Standards  
 Department of Health, Education, and Welfare  
 Department of the Interior—  
 Bureau of Mines (uranium mines)  
 Mining Enforcement and Safety Administra-  
 tion (uranium mines)  
 Environmental Protection Agency

#### HAZARDOUS SUBSTANCES

##### *Toxic Materials*

Atomic Energy Commission (radioactive sub-  
 stances)  
 Department of Agriculture—  
 Agricultural Research Service  
 Consumer and Marketing Service  
 Department of Commerce—  
 National Oceanic and Atmospheric Administra-  
 tion  
 Department of Defense  
 Department of Health, Education, and Welfare  
 Environmental Protection Agency

##### *Food Additives and Contamination of Foodstuffs*

Department of Agriculture—  
 Consumer and Marketing Service (meat and  
 poultry products)  
 Department of Health, Education, and Welfare  
 Environmental Protection Agency

#### *Pesticides*

Department of Agriculture—  
 Agricultural Research Service (biological con-  
 trols, food and fiber production)  
 Consumer and Marketing Service  
 Forest Service  
 Department of Commerce—  
 National Oceanic and Atmospheric Administra-  
 tion  
 Department of Health, Education, and Welfare  
 Department of the Interior—  
 Bureau of Sport Fisheries and Wildlife (fish  
 and wildlife effects)  
 Bureau of Land Management (public lands)  
 Bureau of Indian Affairs (Indian lands)  
 Bureau of Reclamation (irrigated lands)  
 Environmental Protection Agency

##### *Transportation and Handling of Hazardous Materials*

Atomic Energy Commission (radioactive sub-  
 stances)  
 Department of Commerce—  
 Maritime Administration  
 National Oceanic and Atmospheric Administra-  
 tion (effects on marine life and the coastal  
 zone)  
 Department of Defense—  
 Armed Services Explosive Safety Board  
 Army Corps of Engineers (navigable water-  
 ways)  
 Department of Transportation  
 Federal Highway Administration, Bureau of  
 Motor Carrier Safety  
 Coast Guard  
 Federal Railroad Administration  
 Federal Aviation Administration  
 Assistant Secretary for Systems Development  
 and Technology  
 Office of Hazardous Materials  
 Office of Pipeline Safety  
 Environmental Protection Agency

ENERGY SUPPLY AND NATURAL RESOURCES  
DEVELOPMENT

*Electric Energy Development, Generation,  
and Transmission, and Use*

Atomic Energy Commission (nuclear)  
Department of Agriculture—  
Rural Electrification Administration (rural areas)  
Department of Defense—  
Army Corps of Engineers (hydro)  
Department of Health, Education, and Welfare (radiation effects)  
Department of Housing and Urban Development (urban areas)  
Department of the Interior—  
Bureau of Indian Affairs (Indian lands)  
Bureau of Land Management (public lands)  
Bureau of Reclamation  
Power Marketing Administrations  
Geological Survey  
Bureau of Sport Fisheries and Wildlife  
Bureau of Outdoor Recreation  
National Park Service  
Environmental Protection Agency  
Federal Power Commission (hydro, transmission, and supply)  
River Basin Commissions (as geographically appropriate)  
Tennessee Valley Authority  
Water Resources Council

*Petroleum Development, Extraction,  
Refining, Transport, and Use*

Department of the Interior—  
Office of Oil and Gas  
Bureau of Mines  
Geological Survey  
Bureau of Land Management (public lands and outer continental shelf)  
Bureau of Indian Affairs (Indian lands)  
Bureau of Sport Fisheries and Wildlife (effects on fish and wildlife)  
Bureau of Outdoor Recreation  
National Park Service  
Department of Transportation (Transport and Pipeline Safety)  
Environmental Protection Agency  
Interstate Commerce Commission

*Natural Gas Development, Production,  
Transmission, and Use*

Department of Housing and Urban Development (urban areas)  
Department of the Interior—  
Office of Oil and Gas  
Geological Survey  
Bureau of Mines  
Bureau of Land Management (public lands)  
Bureau of Indian Affairs (Indian lands)  
Bureau of Sport Fisheries and Wildlife  
Bureau of Outdoor Recreation  
National Park Service  
Department of Transportation (transport and safety)  
Environmental Protection Agency  
Federal Power Commission (production, transmission, and supply)  
Interstate Commerce Commission

*Coal and Minerals Development, Mining,  
Conversion, Processing, Transport, and Use*

Appalachian Regional Commission  
Department of Agriculture—  
Forest Service  
Department of Commerce  
Department of Interior—  
Office of Coal Research  
Mining Enforcement and Safety Administration  
Bureau of Mines  
Geological Survey  
Bureau of Indian Affairs (Indian lands)  
Bureau of Land Management (public lands)  
Bureau of Sport Fisheries and Wildlife  
Bureau of Outdoor Recreation  
National Park Service  
Department of Labor—  
Occupational Safety and Health Administration  
Department of Transportation  
Environmental Protection Agency  
Interstate Commerce Commission  
Tennessee Valley Authority

*Renewable Resource Development, Production,  
Management, Harvest, Transport, and Use*

Department of Agriculture—  
Forest Service  
Soil Conservation Service  
Department of Commerce  
Department of Housing and Urban Development  
(building materials)  
Department of the Interior—  
Geological Survey  
Bureau of Land Management (public lands)  
Bureau of Indian Affairs (Indian lands)  
Bureau of Sport Fisheries and Wildlife  
Bureau of Outdoor Recreation  
National Park Service  
Department of Transportation  
Environmental Protection Agency  
Interstate Commerce Commission (freight rates)

*Energy and Natural Resources Conservation*

Department of Agriculture—  
Forest Service  
Soil Conservation Service  
Department of Commerce—  
National Bureau of Standards (energy efficiency)  
Department of Housing and Urban Development—  
Federal Housing Administration (housing standards)  
Department of the Interior—  
Office of Energy Conservation  
Bureau of Mines  
Bureau of Reclamation  
Geological Survey  
Power Marketing Administration  
Department of Transportation  
Environmental Protection Agency  
Federal Power Commission  
General Services Administration (design and operation of buildings)  
Tennessee Valley Authority  
Federal Energy Administration

LAND USE AND MANAGEMENT

*Land Use Changes, Planning and Regulation  
or Land Development*

Department of Agriculture—  
Forest Service (forest lands)  
Agricultural Research Service (agricultural lands)  
Department of Housing and Urban Development  
Department of the Interior—  
Office of Land Use and Water Planning  
Bureau of Land Management (public lands)  
Bureau of Indian Affairs (Indian lands)  
Bureau of Sport Fisheries and Wildlife (wildlife refuges)  
Bureau of Outdoor Recreation (recreation lands)  
National Park Service (NPS units)  
Department of Transportation  
Environmental Protection Agency (pollution effects)  
National Aeronautics and Space Administration (remote sensing)  
River Basins Commissions (as geographically appropriate)

*Public Land Management*

Department of Agriculture—  
Forest Service (forests)  
Department of Defense  
Department of the Interior—  
Bureau of Land Management  
Bureau of Indian Affairs (Indian lands)  
Bureau of Sport Fisheries and Wildlife (wildlife refuges)  
Bureau of Outdoor Recreation (recreation lands)  
National Park Service (NPS units)  
Federal Power Commission (project lands)  
General Services Administration  
National Aeronautics and Space Administration (remote sensing)  
Tennessee Valley Authority (project lands)

PROTECTION OF ENVIRONMENTALLY CRITICAL AREAS  
DUNES, UNSTABLE SOILS, STEEP SLOPES,  
AQUIFER RECHARGE AREAS, ETC.

Department of Agriculture—  
Agricultural Stabilization and Conservation  
Service  
Soil Conservation Service  
Forest Service

Department of Commerce—  
National Oceanic and Atmospheric Admin-  
istration (coastal areas)

Department of Defense—  
Army Corps of Engineers

Department of Housing and Urban Development  
(urban and floodplain areas)

Department of the Interior—  
Office of Land Use and Water Planning  
Bureau of Outdoor Recreation  
Bureau of Reclamation  
Bureau of Sport Fisheries and Wildlife  
Bureau of Land Management  
Geological Survey

Environmental Protection Agency (pollution ef-  
fects)

National Aeronautics and Space Administration  
(remote sensing)

River Basins Commissions (as geographically ap-  
propriate)

Water Resources Council

#### LAND USE IN COASTAL AREAS

Department of Agriculture—  
Forest Service  
Soil Conservation Service (soil stability, hy-  
drology)

Department of Commerce—  
National Oceanic and Atmospheric Administra-  
tion (impact on marine life and coastal zone  
management)

Department of Defense—  
Army Corps of Engineers (beaches, dredge and  
fill permits, Refuse Act permits)

Department of Housing and Urban Develop-  
ment (urban areas)

Department of the Interior—  
Office of Land Use and Water Planning  
Bureau of Sport Fisheries and Wildlife  
National Park Service  
Geological Survey  
Bureau of Outdoor Recreation  
Bureau of Land Management (public lands)

Department of Transportation—  
Coast Guard (bridges, navigation)

Environmental Protection Agency (pollution ef-  
fects)

National Aeronautics and Space Administration  
(remote sensing)

#### REDEVELOPMENT AND CONSTRUCTION IN BUILT-UP AREAS

Department of Commerce—  
Economic Development Administration (desig-  
nated areas)

Department of Housing and Urban Development

Department of the Interior—  
Office of Land Use and Water Planning

Department of Transportation  
Environmental Protection Agency  
General Services Administration  
Office of Economic Opportunity

#### DENSITY AND CONGESTION MITIGATION

Department of Health, Education, and Welfare  
Department of Housing and Urban Development

Department of the Interior—  
Office of Land Use and Water Planning  
Bureau of Outdoor Recreation

Department of Transportation  
Environmental Protection Agency

#### NEIGHBORHOOD CHARACTER AND CONTINUITY

Department of Health, Education, and Welfare  
Department of Housing and Urban Development  
National Endowment for the Arts  
Office of Economic Opportunity

## IMPACTS ON LOW-INCOME POPULATIONS

Department of Commerce—  
Economic Development Administration (designated areas)  
Department of Health, Education, and Welfare  
Department of Housing and Urban Development  
Office of Economic Opportunity

## HISTORIC, ARCHITECTURAL, AND ARCHEOLOGICAL PRESERVATION

Advisory Council on Historic Preservation  
Department of Housing and Urban Development  
Department of the Interior—  
National Park Service  
Bureau of Land Management (public lands)  
Bureau of Indian Affairs (Indian lands)  
General Services Administration  
National Endowment for the Arts

## SOIL AND PLANT CONSERVATION AND HYDROLOGY

Department of Agriculture—  
Soil Conservation Service  
Agriculture Service  
Forest Service  
Department of Commerce—  
National Oceanic and Atmospheric Administration  
Department of Defense—  
Army Corps of Engineers (dredging, aquatic plants)  
Department of Health, Education, and Welfare

Department of the Interior  
Bureau of Land Management  
Bureau of Sport Fisheries and Wildlife  
Geological Survey  
Bureau of Reclamation  
Environmental Protection Agency  
National Aeronautics and Space Administration (remote sensing)  
River Basin Commissions (as geographically appropriate)  
Water Resources Council

## OUTDOOR RECREATION

Department of Agriculture  
Forest Service  
Soil Conservation Service  
Department of Defense—  
Army Corps of Engineers  
Department of Housing and Urban Development (urban areas)  
Department of the Interior—  
Bureau of Land Management  
National Park Service  
Bureau of Outdoor Recreation  
Bureau of Sport Fisheries and Wildlife  
Bureau of Indian Affairs  
Environmental Protection Agency  
National Aeronautics and Space Administration (remote sensing)  
River Basin Commissions (as geographically appropriate)  
Water Resources Council

### ATTACHMENT 3

#### OFFICES WITHIN FEDERAL AGENCIES AND FEDERAL-STATE AGENCIES FOR INFORMATION REGARDING THE AGENCIES' NEPA ACTIVITIES AND FOR RECEIVING OTHER AGENCIES' IMPACT STATEMENTS FOR WHICH COMMENTS ARE REQUESTED

##### ADVISORY COUNCIL ON HISTORIC PRESERVATION

Office of Architectural and Environmental Preservation, Advisory Council on Historic Preservation, Suite 430, 1522 K Street N.W., Washington, D.C. 20005 254-3974.

Regional Administrator, I, U.S. Environmental Protection Agency, Room 2303, John F. Kennedy Federal Bldg., Boston, Mass. 02203 (617) 223-7210.

Regional Administrator, II, U.S. Environmental Protection Agency, Room 908, 26 Federal Plaza, New York, New York 10007 (212) 264-2525.

Regional Administrator, III, U.S. Environmental Protection Agency, Curtis Bldg., 6th & Walnut Sts., Philadelphia, Pa. 19106 (215) 597-9801.

Regional Administrator, IV, U.S. Environmental Protection Agency, 1421 Peachtree Street, N.E., Atlanta, Ga. 30309 (404) 526-5727.

Regional Administrator, V, U.S. Environmental Protection Agency, 1 N. Wacker Drive, Chicago, Illinois 60606 (312) 353-5250.

Regional Administrator, VI, U.S. Environmental Protection Agency, 1600 Patterson Street, Suite 1100, Dallas, Texas 75201 (214) 749-1962.

Regional Administrator, VII, U.S. Environmental Protection Agency, 1735 Baltimore Avenue, Kansas City, Missouri 64108 (816) 374-5493.

Regional Administrator, VIII, U.S. Environmental Protection Agency, Suite 900, Lincoln Tower, 1860 Lincoln Street, Denver, Colorado 80203 (303) 837-3895.

Regional Administrator, IX, U.S. Environmental Protection Agency, 100 California Street, San Francisco, California 94111 (415) 556-2320.

Regional Administrator, X, U.S. Environmental Protection Agency, 1200 Sixth Avenue, Seattle, Washington 98101 (206) 442-1220.

##### ENVIRONMENTAL PROTECTION AGENCY<sup>1</sup>

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

New Jersey, New York, Puerto Rico, Virgin Islands

Delaware, Maryland, Pennsylvania, Virginia, West Virginia, District of Columbia

Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

Illinois, Indiana, Michigan, Minnesota, Ohio Wisconsin

Arkansas, Louisiana, New Mexico, Texas, Oklahoma

Iowa, Kansas, Missouri, Nebraska

Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

Arizona, California, Hawaii, Nevada, American Samoa, Guam, Trust Territories of Pacific Islands, Wake Island

Alaska, Idaho, Oregon, Washington

##### DEPARTMENT OF AGRICULTURE<sup>2</sup>

Office of the Secretary, Attn: Coordinator, Environmental Quality Activities, U.S. Department of Agriculture, Washington, D.C. 20250 447-3965.

<sup>1</sup> Contact the Office of Federal Activities for environmental statements concerning legislation, regulations, national program proposals, or other major policy issues.

For all other EPA consultation, contact the Regional Administrator in whose area the proposed action (e.g., highway or water resource construction projects) will take place. The Regional Administrators will coordinate the EPA review. Addresses of the Regional Administrators, and the areas covered by their regions are as follows:

Director, Office of Federal Activities, Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460 755-0777.

<sup>2</sup> Requests for comments or information from individual units of the Department of Agriculture, e.g., Soil Conservation Service, Forest Service, etc. should be sent to the Office of the Secretary, Department of Agriculture, at the address given above.



#### APPALACHIAN REGIONAL COMMISSION

Office of the Alternate Federal Co-Chairman, Appalachian Regional Commission, 1666 Connecticut Avenue, N.W., Washington, D.C. 20235 967-4103.

#### DEPARTMENT OF THE ARMY (CORPS OF ENGINEERS)

Executive Director of Civil Works, Office of the Chief of Engineers, U.S. Army Corps of Engineers, Washington, D.C. 20314 693-7168.

#### ATOMIC ENERGY COMMISSION

For nonregulatory matters: Office of Assistant General Manager for Biomedical and Environmental Research and Safety Programs, Atomic Energy Commission, Washington, D.C. 20345 973-3208.

For regulatory matters: Office of the Assistant Director for Environmental Projects, Atomic Energy Commission, Washington, D.C. 20545 973-7531.

#### DEPARTMENT OF COMMERCE

Office of the Deputy Assistant Secretary for Environmental Affairs, U.S. Department of Commerce, Washington, D.C. 20230 967-4335.

#### DEPARTMENT OF DEFENSE

Office of the Assistant Secretary for Defense (Health and Environment), U.S. Department of Defense, Room 3E172, The Pentagon, Washington, D.C. 20301 697-2111.

#### DELAWARE RIVER BASIN COMMISSION

Office of the Secretary, Delaware River Basin Commission, Post Office Box 360, Trenton, N.J. 08603 (609) 883-9500.

#### FEDERAL POWER COMMISSION

Commission's Advisor on Environmental Quality, Federal Power Commission, 825 N. Capitol Street, N.E. Washington, D.C. 20426 386-6084.

#### GENERAL SERVICES ADMINISTRATION

Office of Environmental Affairs, Office of the Deputy Administrator for Special Projects, General Services Administration, Washington, D.C. 20405 343-4161.

#### GREAT LAKES BASIN COMMISSION

Office of the Chairman, Great Lakes Basin Commission, 3475 Plymouth Road, P.O. Box 999, Ann Arbor, Michigan 48105 (313) 769-7431.

#### DEPARTMENT OF HEALTH, EDUCATION AND WELFARE<sup>3</sup>

For information with respect to HEW actions occurring within the jurisdiction of the Departments' Regional Directors, contact the appropriate Regional Environmental Officer:

Office of Environmental Affairs, Office of the Assistant Secretary for Administration and Management, Department of Health, Education and Welfare, Washington, D.C. 20202 963-4456.

Region I, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, Room 2007B, John F. Kennedy Center, Boston, Massachusetts 02203 (617) 223-6837.

Region II, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, Federal Building, 26 Federal Plaza, New York, New York 10007 (212) 264-1308.

Region III, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, P.O. Box 13716, Philadelphia, Pennsylvania 19101 (215) 597-6498.

Region IV, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, Room 404, 50 Seventh Street, N.E. Atlanta, Georgia 30323 (404) 526-5817.

Region V, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, 433 West Van Buren Street, Chicago, Illinois 60607 (312) 353-1644.

#### DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT<sup>4</sup>

Regional Administrator II, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, 26 Federal Plaza, New York, New York 10007 (212) 264-8068.

<sup>3</sup> Contact the Office of Environment Affairs for information on HEW's environmental statements concerning legislation, regulations, national program proposals or other major policy issues, and for all requests for HEW comment on impact statements of other agencies.

<sup>4</sup> Contact the Director with regard to environmental impacts of legislation, policy statements, program regulations and procedures, and precedent-making project decisions. For all other HUD consultation, contact the HUD Regional Administrator in whose jurisdiction the project lies, as follows:

Regional Administrator I, Environmental Clearance Officer, U.S. Department of Housing and Urban Development

Regional Administrator III, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, Curtis Building, Sixth and Walnut Street, Philadelphia, Pennsylvania 19106 (215) 597-2560.

Regional Administrator IV, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, Peachtree-Seventh Building, Atlanta, Georgia 30323 (404) 526-5585.

Regional Administrator V, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, 360 North Michigan Avenue, Chicago, Illinois 60601 (312) 353-5680.

Director, Office of Community and Environmental Standards, Department of Housing and Urban Development, Room 7206, Washington, D.C. 20410 755-5980.

#### DEPARTMENT OF THE INTERIOR<sup>5</sup>

Director, Office of Environmental Project Review, Department of the Interior, Interior Building, Washington, D.C. 20240 343-3891.

#### INTERSTATE COMMERCE COMMISSION

Office of Proceedings, Interstate Commerce Commission, Washington, D.C. 20423 343-6167.

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ment, Room 405, John F. Kennedy Federal Building, Boston, Mass 02203 (617) 223-4066.

Region VI, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, 1114 Commerce Street, Dallas, Texas 75202 (214) 749-2236.

Region VII, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, 601 East 12th Street, Kansas City, Missouri 64106 (816) 374-3584.

Region VIII, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, 9017 Federal Building, 19th and Stout Streets, Denver, Colorado 80202 (303) 837-4178.

Region IX, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, 50 Fulton Street, San Francisco, California 94102 (415) 556-1970.

Region X, Regional Environmental Officer, U.S. Department of Health, Education and Welfare, Arcade Plaza Building, 1321 Second Street, Seattle, Washington 98101 (206) 442-0490.

<sup>5</sup> Requests for comments or information from individual units of the Department of the Interior should be sent to the Office of Environmental Project Review at the address given above.

#### DEPARTMENT OF LABOR

Assistant Secretary for Occupational Safety and Health, Department of Labor, Washington, D.C. 20210 961-3405.

#### MISSOURI RIVER BASINS COMMISSION

Office of the Chairman, Missouri River Basins Commission, 10050 Regency Circle, Omaha, Nebraska 68114 (402) 397-5714.

#### NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Office of the Comptroller, National Aeronautics and Space Administration, Washington, D.C. 20546 755-8440.

#### NATIONAL CAPITAL PLANNING COMMISSION

Office of Environmental Affairs, Office of the Executive Director, National Capital Planning Commission, Washington, D.C. 20576 382-7200.

#### NATIONAL ENDOWMENT FOR THE ARTS

Office of Architecture and Environmental Arts Program, National Endowment for the Arts, Washington, D.C. 20506 382-5765.

#### NEW ENGLAND RIVER BASINS COMMISSION

Office of the Chairman, New England River Basins Commission, 55 Court Street, Boston, Mass. 02108 (617) 223-6244.

Regional Administrator VI, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, Federal Office Building, 819 Taylor Street, Fort Worth, Texas 76102 (817) 334-2867.

Regional Administrator VII, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, 911 Walnut Street, Kansas City, Missouri 64106 (816) 374-2661.

Regional Administrator VIII, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, Samsonite Building, 1051 South Broadway, Denver Colorado 80209 (303) 837-4061.

Regional Administrator IX, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, 450 Golden Gate Avenue, Post Office Box 36003, San Francisco, California 94102 (415) 556-4752.

Regional Administrator X, Environmental Clearance Officer, U.S. Department of Housing and Urban Development, Room 226, Arcade Plaza Building, Seattle, Washington 98101 (206) 583-5415.

#### OFFICE OF ECONOMIC OPPORTUNITY

Office of the Director, Office of Economic Opportunity, 1200 19th Street, N.W., Washington, D.C. 20506 254-6000.

#### OHIO RIVER BASIN COMMISSION

Office of the Chairman, Ohio River Basin Commission, 36 East 4th Street, Suite 208-20, Cincinnati, Ohio 45202 (513) 684-3831.

#### PACIFIC NORTHWEST RIVER BASINS COMMISSION

Office of the Chairman, Pacific Northwest River Basins Commission, 1 Columbia River, Vancouver, Washington 98660 (206) 695-3606.

#### SOURIS-RED-RAINY RIVER BASINS COMMISSION

Office of the Chairman, Souris-Red-Rainy River Basins Commission, Suite 6, Professional Building, Holiday Mall, Moorhead, Minnesota 56560 (701) 237-5227.

#### DEPARTMENT OF STATE

Office of the Special Assistant to the Secretary for Environmental Affairs, Department of State, Washington, D.C. 20520 632-7964.

#### SUSQUEHANNA RIVER BASIN COMMISSION

Office of the Executive Director, Susquehanna River Basin Commission, 5012 Lenker Street, Mechanicsburg, Pa. 17055 (717) 737-0501.

#### TENNESSEE VALLEY AUTHORITY

Office of the Director of Environmental Research and Development, Tennessee Valley Authority, 720 Edney Building, Chattanooga, Tennessee 37401 (615) 755-2002.

#### DEPARTMENT OF TRANSPORTATION<sup>6</sup>

Director, Office of Environmental Quality, Office of the Assistant Secretary for Environment,

Safety, and Consumer Affairs, Department of Transportation, Washington, D.C. 20590 426-4357.

For information regarding the Department of Transportation's other environmental statements, contact the national office for the appropriate administration:

#### *U.S. Coast Guard*

Office of Marine Environment and Systems, U.S. Coast Guard, 400 7th Street, S.W., Washington, D.C. 20590 426-2007.

#### *Federal Aviation Administration*

Office of Environmental Quality, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591 426-8406.

#### *Federal Highway Administration*

Office of Environmental Policy, Federal Highway Administration, 400 7th Street, S.W., Washington, D.C. 20590 426-0351.

#### *Federal Railroad Administration*

Office of Policy and Plans, Federal Railroad Administration, 400 7th Street, S.W., Washington, D.C. 20590 426-1567.

#### *Urban Mass Transportation Administration*

Office of Program Operations, Urban Mass Transportation Administration, 400 7th Street, S.W., Washington, D.C. 20590 426-4020.

For other administration's not listed above, contact the Office of Environmental Quality, Department of Transportation, at the address given above.

For comments on other agencies' environmental statements, contact the appropriate administration's regional office. If more than one administration within the Department of Transportation is to be requested to comment, contact the Secretarial Representative in the appropriate Regional Office for coordination of the Department's comments:

#### SECRETARIAL REPRESENTATIVE

Region I Secretarial Representative, U.S. Department of Transportation, Transportation Systems Center 55 Broadway, Cambridge, Massachusetts 02142 (617) 494-2709.

<sup>6</sup> Contact the Office of Environmental Quality, Department of Transportation, for information on DOT's environmental statements concerning legislation, regulations, national program proposals, or other major policy issues.

Region II Secretarial Representative, U.S. Department of Transportation, 26 Federal Plaza, Room 1811, New York, New York 10007 (212) 264-2672.

Region III Secretarial Representative, U.S. Department of Transportation, Mall Building, Suite 1214, 325 Chestnut Street, Philadelphia, Pennsylvania 19106 (215) 597-0407.

Region IV Secretarial Representative, U.S. Department of Transportation, Suite 515, 1720 Peachtree Rd., N.W., Atlanta, Georgia 30309 (404) 526-3738.

Region V Secretarial Representative, U.S. Department of Transportation, 17th Floor, 300 S. Wacker Drive, Chicago, Illinois 60606 (312) 353-4000.

Region VI Secretarial Representative, U.S. Department of Transportation, 9-C-18 Federal Center, 1100 Commerce Street, Dallas, Texas 75202 (214) 749-1851.

Region VII Secretarial Representative, U.S. Department of Transportation, 601 E. 12th Street, Room 634, Kansas City, Missouri 64106 (816) 374-2761.

Region VIII Secretarial Representative, U.S. Department of Transportation, Prudential Plaza, Suite 1822, 1050 17th Street, Denver, Colorado 80225 (303) 837-3242.

Region IX Secretarial Representative, U.S. Department of Transportation, 450 Golden Gate Avenue, Box 36133, San Francisco, California 94102 (415) 556-5961.

Region X Secretarial Representative, U.S. Department of Transportation, 1321 Second Avenue, Room 507, Seattle, Washington 98101 (206) 442-0590.

#### FEDERAL AVIATION ADMINISTRATION

New England Region, Office of the Regional Director, Federal Aviation Administration, 154 Middlesex Street, Burlington, Massachusetts 01803 (617) 272-2350.

Eastern Region, Office of the Regional Director, Federal Aviation Administration, Federal Building, JFK International Airport, Jamaica, New York 11430 (212) 995-3333.

Southern Region, Office of the Regional Director, Federal Aviation Administration, P.O. Box 20636, Atlanta, Georgia 30320 (404) 526-7222.

Great Lakes Region, Office of the Regional Director, Federal Aviation Administration, 2300 East Devon, Des Plaines, Illinois 60018 (312) 694-4500.

Southwest Region, Office of the Regional Director, Federal Aviation Administration, P.O. Box 1689, Fort Worth Texas 76101 (817) 624-4911.

Central Region, Office of the Regional Director, Federal Aviation Administration, 601 E. 12th Street, Kansas City, Missouri 64106 (816) 374-5626.

Rocky Mountain Region, Office of the Regional Director, Federal Aviation Administration, Park Hill Station, P.O. Box 7213, Denver, Colorado 80207 (303) 837-3646.

Western Region, Office of the Regional Director, Federal Aviation Administration, P.O. Box 92007, World Way Postal Center, Los Angeles, California 90009 (213) 536-6427.

Northwest Region, Office of the Regional Director, Federal Aviation Administration, FAA Building, Boeing Field, Seattle, Washington 98108 (206) 767-2780.

#### FEDERAL HIGHWAY ADMINISTRATION

Region 1, Regional Administrator, Federal Highway Administration, 4 Normanskill Boulevard, Delmar, New York 12054 (518) 472-6476.

Region 3, Regional Administrator, Federal Highway Administration, Room 1621, George H. Fallon Federal Office Building, 31 Hopkins Plaza, Baltimore, Maryland 21201 (301) 962-2361.

Region 4, Regional Administrator, Federal Highway Administration, Suite 200, 1720 Peachtree Road, N.W., Atlanta, Georgia 30309 (404) 526-5078.

Region 5, Regional Administrator, Federal Highway Administration, Dixie Highway, Homewood, Illinois 604030 (312) 799-6300.

Region 6, Regional Administrator, Federal Highway Administration, 819 Taylor Street, Fort Worth, Texas 76102 (817) 334-3232.

Region 7, Regional Administrator, Federal Highway Administration, P.O. Box 7186, Country Club Station, Kansas City, Missouri 64113 (816) 361-7563.

Region 8, Regional Administrator, Federal Highway Administration, Room 242, Building 40, Denver Federal Center, Denver, Colorado 80225.

Region 9, Regional Administrator, Federal Highway Administration, 450 Golden Gate Avenue, Box 36096, San Francisco, California 94102 (415) 556-3895.

Region 10, Regional Administrator, Federal Highway Administration, Room 412, Mohawk Building, 222 S.W. Morrison Street, Portland, Oregon 97204 (503) 221-2065.

#### URBAN MASS TRANSPORTATION ADMINISTRATION

Region I, Office of the UMTA Representative, Urban Mass Transportation Administration, Transportation Systems Center, Technology Building, Room 277, 55 Broadway, Boston, Massachusetts 02142 (617) 494-2055.

Region II, Office of the UMTA Representative, Urban Mass Transportation Administration, 26 Federal Plaza, Suite 1809, New York, New York 10007 (212) 264-8162.

Region III, Office of the UMTA Representative, Urban Mass Transportation Administration, Mall Building, Suite 1214, 325 Chestnut Street, Philadelphia, Pennsylvania 19106 (215) 597-0407.

Region IV, Office of the UMTA Representative, Urban Mass Transportation Administration, 1720 Peachtree Road, Northwest Suite 501, Atlanta, Georgia 30309 (404) 526-3948.

Region V, Office of the UMTA Representative, Urban Mass Transportation Administration, 300 South Wacker Drive, Suite 700, Chicago, Illinois 60606 (312) 353-6005.

Region VI, Office of the UMTA Representative, Urban Mass Transportation Administration, Federal Center, Suite 9E24, 1100 Commerce Street, Dallas, Texas 75202 (214) 749-7322.

Region VII, Office of the UMTA Representative, Urban Mass Transportation Administration, c/o FAA Management Systems Division, Room 1564D, 601 East 12th Street, Kansas City, Missouri 64106 (816) 374-5567.

Region VIII, Office of the UMTA Representative, Urban Mass Transportation Administration, Prudential Plaza, Suite 1822, 1050 17th Street, Denver, Colorado 80202 (303) 837-3242.

Region IX, Office of the UMTA Representative, Urban Mass Transportation Administration, 450 Golden Gate Avenue, Box 36125, San Francisco, California 94102 (415) 556-2884.

Region X, Office of the UMTA Representative, Urban Mass Transportation Administration, 1321 Second Avenue, Suite 5079, Seattle, Washington (206) 442-0590.

#### DEPARTMENT OF THE TREASURY

Office of Assistant Secretary for Administration, Department of the Treasury, Washington, D.C. 20220 964-5391.

#### UPPER MISSISSIPPI RIVER BASIN COMMISSION

Office of the Chairman, Upper Mississippi River Basin Commission, Federal Office Building, Fort Snelling, Twin Cities, Minnesota 55111 (612) 725-4690.

#### WATER RESOURCES COUNCIL

Office of the Associate Director, Water Resources Council, 2120 L Street, N.W., Suite 800, Washington, D.C. 20037 254-6442.

#### **ATTACHMENT 4**

##### **STATE AND LOCAL AGENCY REVIEW OF IMPACT STATEMENTS**

1. OBM Revised Circular No. A-95 through its system of clearinghouses provides a means for securing the views of State and local environmental agencies, which can assist in the preparation of impact statements. Under A-95, review of the proposed project in the case of federally assisted projects (Part I of A-95) generally takes place prior to the preparation of the impact statement. Therefore, comments on the environmental effects of the proposed project that are secured during this stage of the A-95 process represent inputs to the environmental impact statement.

2. In the case of direct Federal development (Part II of A-95), Federal agencies are required to consult with clearinghouse at the earliest practicable time in the planning of the project or activity. Where such consultation occurs prior to completion of the draft impact statement, comments relating to the environmental effects of the proposed action would also represent inputs to the environmental impact statement.

3. In either case, whatever comments are made on environmental effects of proposed Federal or federally assisted projects by clearinghouses, or by State and local environmental agencies through clearinghouses, in the course of the A-95

review should be attached to the draft impact statement when it is circulated for review. Copies of the statement should be sent to the agencies making such comments. Whether those agencies then elect to comment again on the basis of the draft impact statement is a matter to be left to the discretion of the commenting agency depending on its resources, the significance of the project and the extent to which its earlier comments were considered in preparing the draft statement.

4. The clearinghouses may also be used, by mutual agreement, for securing reviews of the draft environmental impact statement. However, the Federal agency may wish to deal directly with appropriate State or local agencies in the review of impact statements because the clearinghouses may be unwilling or unable to handle this phase of the process. In some cases, the Governor may have designated a specific agency, other than the clearinghouse, for securing reviews of impact statements. In any case, the clearinghouses should be sent copies of the impact statement.

5. To aid clearinghouses in coordinating State and local comments, draft statements should include copies of State and local agency comments made earlier under the A-95 process and should indicate on the summary sheet those other agencies from which comments have been requested, as specified in Attachment 1.

**40 F.R. 52395  
November 10, 1975**

## PREAMBLE TO PART 523—VEHICLE CLASSIFICATION

(Docket No. FE76-05; Notice 3)

Title V of the Motor Vehicle Information and Cost Savings Act (the Act) specifies that certain vehicles with a gross vehicle weight rating (GVWR) of not more than 6,000 pounds are automobiles, and, therefore, subject to the fuel economy provisions of the Act. This rule adds passenger cars with a GVWR of more than 6,000 pounds and less than 10,000 pounds to the automobile category. The rule also specifies which automobiles are passenger automobiles and which are nonpassenger automobiles. Separate fuel economy standards have been established under the Act for those automobile subcategories.

Effective Date: July 28, 1977.

For Further Information, Contact:

Douglas Pritchard  
Office of Automotive Fuel Economy  
National Highway Traffic Safety  
Administration  
Department of Transportation  
Washington, D.C. 20590  
(202) 755-9384

Supplementary Information: The essential features of this rule were first outlined in the notice of proposed rulemaking issued by this agency on petitions for reduction of the average fuel economy standards for model year 1978-1980 passenger automobiles (41 FR 46878, October 26, 1976). A notice of proposed rulemaking (NPRM) dealing directly with classification appeared at 41 FR 55368 on December 20, 1976. The NPRM followed the outlines in the proposal for reduction petitions. The NPRM proposed classifying all passenger cars with a gross vehicle weight rating (GVWR) of less than 10,000 pounds as passenger automobiles. Pickup trucks, recreational vehicles, vans, general purpose vehicles, and other similar vehicles with a GVWR of not more than 6,000 pounds were classified as nonpassenger auto-

mobiles. All comments on that proposal have been considered and the most significant ones are discussed below.

*Summary of major differences between proposed and final rules.* The only significant change in the rule is in the method for measuring the interior volume of certain automobiles for the purpose of determining whether those automobiles have greater cargo-carrying volume than passenger-carrying volume. If they do, they are a type of nonpassenger automobile. The method proposed in the NPRM differed slightly from the method used by the Environmental Protection Agency (EPA) for determining comparable classes of passenger automobiles under its fuel economy labeling program. The final rule adopts the EPA method in all respects for passenger automobiles.

*Scope of rule.* Under this rule, the passenger automobile and nonpassenger automobile subcategories consist of the same types of vehicles proposed to be included in each category in the NPRM. The only vehicles that are potentially subject to regulation under the Act and that are not classified as automobiles by this notice are pickup trucks, recreational vehicles, vans, and general purpose vehicles with a GVWR of more than 6,000 pounds and less than 10,000 pounds. The agency is contemplating initiating rulemaking late this summer to expand the nonpassenger automobile subcategory by raising the upper GVWR limit of the subcategory to at least 8,500 pounds. That proposal would make the expansion effective for the 1980 model year. Thus, the vehicles brought into the nonpassenger automobile subcategory by that proposal would become subject to average fuel economy standards beginning in that model year.

International Harvester commented that, although the preamble to the classification NPRM indicated that the nonpassenger automobile subcategory was intended to include only vehicles with a GVWR of not more than 6,000 pounds, the proposed rule itself could be interpreted as classifying vehicles which have a GVWR of more than 6,000 pounds and less than 10,000 pounds and have 4 of the 5 ground clearance characteristics specified in the rule as automobiles capable of off-highway operation. Since an automobile capable of off-highway operation is a type of nonpassenger automobile, this commenter believed that the rule would yield a result contrary to the stated intention of the preamble.

This is a misinterpretation of the rule. The provisions in the rule relating to passenger automobiles and nonpassenger automobiles, including automobiles capable of off-highway operation, have been drafted so that they set forth how any vehicle with a GVWR of less than 10,000 pounds be subcategorized if it were first categorized as an automobile. As noted above, this rule does not categorize as automobiles all vehicles that can potentially be so categorized. Under the statute, all such vehicles with a GVWR of not more than 6,000 pounds are automatically automobiles. Section 523.3(b) of this rule adds passenger cars with a GVWR greater than 6,000 pounds and less than 10,000 pounds to that category. The rule states how these automobiles are subcategorized. Yet to be included in the automobile category are pickup trucks, vans, recreational vehicles, general purpose vehicles and other similar vehicles with a GVWR greater than 6,000 pounds and less than 10,000 pounds. The rule states how these vehicles would be subcategorized when and if they are first categorized as automobiles. Thus, the crucial point to bear in mind is that a vehicle cannot fall within some subcategory of automobiles, such as automobiles capable of off-highway operation, unless it first falls within the automobile category. Since no vehicle which has a GVWR greater than 6,000 pounds and less than 10,000 pounds and has 4 or 5 of the 5 ground clearance characteristics is an automobile under this rule, no such vehicle can be an automobile capable of off-highway op-

eration under this rule. Such vehicles may be what one might call vehicles capable of off-highway operation, but they are not yet automobiles capable of off-highway operation.

In a related comment the General Services Administration (GSA) stated that it did not understand why this agency had proposed to list a GVWR of more than 6,000 pounds as one criterion for classification of an automobile as an automobile capable of off-highway operation. The proposed and final rules include in the automobile category any vehicle that has a GVWR of less than 6,000 pounds and has 4 or 5 of the ground clearance characteristics specified in the rule. Any such automobile is an automobile capable of off-highway operation. GSA correctly interpreted the proposed rule as excluding, however, a vehicle from the automobile category if the vehicle has a GVWR greater than 6,000 pounds and less than 10,000 pounds and 4 or 5 of the 5 ground clearance characteristics. To clarify this exclusion, GSA suggested the deletion of having a GVWR of greater than 6,000 pounds as one criterion for classification of an automobile as one capable of off-highway operation.

The confusion discussed by International Harvester and GSA could be eliminated if having a GVWR of greater than 6,000 pounds and less than 10,000 pounds were not viewed as an indication of a capability of off-highway operation in the same vein as 4-wheel drive or ground clearance. Section 501(3) of the Act might have been more clearly understood if it had been drafted to provide that automobiles with a GVWR of not more than 6,000 pounds had to have 4-wheel drive and another feature related to off-highway capability to be classified as an automobile capable of off-highway operation, and that automobiles with a GVWR greater than 6,000 pounds and less than 10,000 pounds had to have only some feature, other than 4-wheel drive, related to off-highway capability to be so classified. Since that section was not so drafted and since the agency deems it desirable to follow statutory language in drafting its criteria in the regulation, the agency has decided to adopt the criteria for classification as automobiles capable of off-highway operation as proposed.



*Subclassification of nonpassenger automobiles.* Ford and International Harvester urged that the nonpassenger automobile subcategory be subdivided. International Harvester urged the creation of subcategories, one for automobiles capable of off-highway operation and another for all other nonpassenger automobiles. Ford also proposed a subcategory for automobiles capable of off-highway operation and urged that the remaining nonpassenger automobiles be divided into those with a GVWR of not more than 6,000 pounds and those with a GVWR greater than 6,000 pounds and less than 10,000 pounds. In its notice of proposed rulemaking (November 26, 1976, 41 FR 52087) on the average fuel economy standard for 1979 nonpassenger automobiles, the agency stated that it was not prepared to address fully the subclassification of nonpassenger automobiles. Based on comments by interested persons, a small subclass of nonpassenger automobiles was created for general purpose vehicles such as the AMC Jeep. The question of further subclassification of nonpassenger automobiles will be considered in connection with rulemaking to be initiated late this summer.

*Definitions.* The NPRM defined "axle clearance", one of the criteria for classifying automobiles as automobiles capable of off-highway operation, as follows:

"Axle clearance" means the distance from the level surface on which an automobile is standing to the lowest point on the axle differential of the automobile.

International Harvester commented that this definition did not provide for the possibility that automobiles intended for off-highway operation might be equipped with independent suspension. To accommodate such automobiles, the company urged that the definition be rewritten to read as follows:

"Axle clearance" means the distance from the level surface on which an automobile is standing to the lowest point on the axle differential or other component more than 18 inches inboard of the wheels in either the front or rear of the automobile.

The reason for this change would be that the differential on independently suspended automobiles could be higher than portions of the axles

on those automobiles. In contrast, the lowest portion of the differential on nonindependently suspended automobiles is typically lower than all portions of the axles of those automobiles. Thus, use of the differential as the reference point for measuring axle clearance could overstate the obstacle clearance capabilities of independently suspended automobiles.

The NHTSA generally agrees with this observation, but is unaware of any standardized ground clearance criteria which would consider all the factors involved in ground clearance. For instance, the definition proposed by International Harvester does not address the width of the vehicle being measured or the size and shape of the obstacle being negotiated. These factors are also important in determining a vehicle's obstacle clearance capabilities.

Nevertheless, the important points to be noted are that the definition of axle clearance proposed in the NPRM is a measure of ground clearance recognized by the Society of Automotive Engineers and presently reported by the Motor Vehicle Manufacturers Association and the individual manufacturers and that use of the proposed definition adequately serves its purpose and does not disadvantage any vehicle, regardless of its axle configuration or suspension system. Accordingly, in the interests of avoiding unnecessary complexity in this rule, the definition proposed in the NPRM is adopted. If a need arises in the future to amend this definition, the NHTSA will initiate rulemaking.

A number of comments were addressed to the interior volume measurement technique used in determining whether an automobile had greater cargo-carrying volume than passenger-carrying volume and thus was a nonpassenger automobile. The NPRM proposed to use a technique that differed slightly from that used by the EPA in its fuel economy labeling regulation (40 CFR 600.315; November 10, 1976, 41 FR 49752) with respect to station wagons and hatchbacks. International Harvester, Ford Motor Company, and Volkswagen of America all stated that this agency should use the EPA measurement technique to avoid the possibility of requiring the manufacturers to measure the interior volume of certain automobiles in two different ways. None of the three companies commented on whether

different techniques were necessary. Ford commented also that publication of two different interior volume measurements for the same automobile would unnecessarily confuse consumers. Conversely, General Motors stated that the measurement techniques used by the two agencies need not be identical.

In the NPRM, this agency stated that use of a single measuring technique that differed slightly from the techniques used by the EPA for various types of automobiles appeared to be necessary. The EPA has one technique for station wagons and a slightly different one for hatchbacks. There is no EPA technique for vans.

After consideration of the comments and a reevaluation of the problem of differentiating between certain passenger automobiles and nonpassenger automobiles, this agency has decided to use the EPA measuring techniques for station wagons and hatchbacks. The differences between the technique proposed in the NPRM and the techniques used by the EPA are minor and do not result in different classification of any automobiles as passenger automobiles or nonpassenger automobiles. Since the results of the different techniques are the same, there appears to be no reason for burdening the manufacturers with the possibility of having to measure the interior space of the same automobile in two different manners. Further, use of the same techniques will avoid the possibility of consumers being confused by some advertisements about interior space based on one technique and other advertisements based on the other technique.

The adoption of the EPA techniques for measuring interior volume of station wagons and hatchbacks meets a number of concerns that various manufacturers had raised about the proposed techniques for measuring the interior space of station wagons. Ford and Chrysler commented that the proposed technique was not suited to 3-seated wagons whose third seat was side or rear facing. The adopted EPA technique measures the third seat area with the seat down in the cargo-carrying position.

Chrysler noted that the proposed definition of "passenger-carrying volume" did not clearly provide dimensions for measuring the volumes of third seats. This could be a problem in passen-

ger vans. The reference in the proposed definition to "rear seats" was intended to encompass all seats behind the front seat. The definition has been amended to provide that the dimensions for second seats be used for any seats to the rear of the second seats also.

Ford urged that certain changes be made in the EPA technique for measuring interior width and front seat leg room and that under-floor (hidden) storage space be included in determining station wagon cargo volume. These comments should be addressed to the EPA, which has the responsibility under the Act for these techniques.

The measurement technique proposed in the NPRM is adopted for use with respect to all automobiles, e.g., vans, for which the EPA does not specify a measurement technique. This provision is necessary so that a measurement technique will be specified for every type of automobile.

*Automobiles.* Several commenters stated certain vehicles with off-highway capability were not automobiles and thus were not subject to average fuel economy standards under the Act. AMC contended that its Jeep CJ is designed, manufactured, and marketed primarily for off-highway operation. AMC stated that Jeeps are "built with low and medium speed capability and accommodate many off-road work-performing equipment accessories". AMC concluded that the Jeep cannot be an automobile since it is not, in that company's view, "manufactured primarily for use on the public streets, roads, and highways." Ford made a similar argument. It stated that vehicles having all of the following features are not manufactured primarily for highway use: (1) 4-wheel drive, (2) high ground clearance as evidenced by certain approach, breakover, and departure angles and by certain running and axle clearances, (3) engine oil systems capable of operation on inclines having up to a 60 percent grade, (4) relatively high axle ratios and heavy duty axle and suspension components, and (5) relatively high frontal area. The GSA took no position on the treatment of vehicles capable of off-highway operation but noted what appeared to it as an inconsistency between a statement on p. 90 in the House report on the Act regarding

vehicles manufactured primarily for off-road use and the portion of the proposed rule relating to automobiles capable of off-highway operation.

NHTSA cannot accept the claims of AMC and Ford that vehicles with the characteristics set out above are not subject to fuel economy standards because their off-road characteristics place them outside the scope of Title V. These arguments have already been considered by the NHTSA and rejected in the preamble to the rule establishing average fuel economy standards for nonpassenger automobiles produced during the 1979 model year: 42 FR 13807, March 14, 1977. The discussion that follows is a shortened version of that earlier discussion. This discussion also demonstrates that the inconsistency perceived by GSA does not exist.

The characteristics identified by the commenters are merely characteristics of vehicles which are capable of off-highway operation. There was no claim that the vehicles had characteristics that made them incapable of highway use. More importantly, neither manufacturer claimed that the vehicles were not intended or expected to spend a substantial portion of their operating lives on the public streets, roads, or highways. Therefore, NHTSA believes that Congress intended these vehicles to be automobiles within the meaning of Section 501 of Title V, and subject to fuel economy standards as nonpassenger automobiles.

This rule and section 501(1) of the Act define an automobile as "any 4-wheeled vehicle propelled by fuel which is manufactured primarily for use on public streets, roads, and highways..." The manufacturers' claims rest on an interpretation of the word "primarily" as meaning "chiefly" in the above-quoted definition of "automobile".

It is a common principle of statutory construction that the words of a statute are to be given their ordinary, everyday meanings, unless there is evidence on the face of the statute that the ordinary, everyday meaning is not applicable and that application of the ordinary, everyday meaning would frustrate the legislative intent. *Malat v. Riddell*, 383 U.S. 569, 571-572 (1966). However, the word "primarily" has two ordinary, everyday meanings in legal usage—"chiefly" and "substantially". See *Board of Governors of the*

*Federal Reserve System v. Agnew*, 329 U.S. 441, 446 (1947); 33A Words and Phrases 206 *et seq.* Hence, the NHTSA must determine which of these two meanings the Congress intended to be applicable in the definition of "automobile".

The NHTSA interprets the word "primarily" as used in the definition of automobile to mean "substantially" for the reasons set forth below. Thus, even if a vehicle is manufactured chiefly for off-highway use, if highway use is a substantial use of the vehicle, it is manufactured primarily for both highway and off-highway use, and is therefore an automobile subject to Title V.

Congress clearly intended that vehicles capable of off-highway operation be subject to fuel economy standards as nonpassenger automobiles: S. Rep. No. 516, 94th Cong., 1st Sess. 153 (1975). Thus, a manufacturer must show more than an off-highway capability in order to establish that a vehicle is beyond the scope of Title V.

The phrase "manufactured primarily for use on the public streets, roads, and highways" is also found in the definitions of "motor vehicle" in Section 102(1) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1391(1)) and Section 2(15) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 1901(15)). "Automobile" under Title V, and "motor vehicle" under both the Vehicle Safety Act and the Cost Savings Act, do not completely overlap (for instance, "automobiles" are limited to four-wheeled vehicles, while "motor vehicles" are not so limited). However, with respect to a vehicle's identity as an on-road or an off-road vehicle, the terms "motor vehicle" and "automobile" seem to refer to the same vehicles. From the experience with regulating these vehicles under the Motor Vehicle Safety Act and the Cost Savings Act, it is clear that the vehicles referred to by AMC and Ford are on-road vehicles with a capability for off-highway operation.

After more than a decade of regulation under the Vehicle Safety Act, both Ford and AMC have acted consistently with the view that vehicles referred to here are "motor vehicles". Indeed, AMC admits that the vehicles are designed to meet the Federal safety standards applicable to motor vehicles. Moreover, the legislative history of the Cost Savings Act specifically con-

templates that Jeeps are subject to that Act. S. Rept. No. 92-413, 92d Cong., 1st Sess., at 20. Congress must be assumed to have been aware of this long, unchallenged regulatory practice which covered the vehicles at issue here when drafting the language found in Section 501 of Title V.

There is nothing in the legislative history of Title V which indicates that the intent of Congress was that the Title have a narrower scope than that given by the NHTSA's interpretation in the NPRM. In its comment to the NPRM, Ford quotes the following passage on p. 90 of the House report on Title V in support of its claim that vehicles with all the features suiting it for off-road use which Ford discussed were not manufactured primarily for on-road use:

The effect of the definitional scheme of the bill is to exclude entirely vehicles not manufactured primarily for highway use (e.g., agricultural and construction equipment, *and vehicles manufactured primarily for off-road rather than highway use.* (Emphasis supplied by Ford.)

Although this language gives some examples of the kinds of vehicles which Congress intended not to be subject to fuel economy standards under the Title, e.g., agricultural equipment and construction equipment, those vehicles are not characterized by the features which are claimed by the manufacturers to establish that a vehicle was not manufactured primarily for highway use. Furthermore, the language which Ford underscored by no means referred necessarily to the vehicles which Ford seeks to have excluded from the Title. Other vehicles, such as racing cars, fork-lifts, and runway fire apparatus, are some vehicles which are not manufactured primarily for highway use. A fuller discussion of the relevant legislative history is set forth below in the section on passenger and nonpassenger automobiles.

Finally, the purpose of the Title dictates that its provisions, especially regarding the scope of its applicability, be given a liberal construction. Congress enacted Title V in response to the energy shortage. In light of the importance of energy conservation to the Nation's economic health and standard of living, NHTSA believes that Congress intended the Title to have broad

application, and that any interpretation of the Title that would have the effect of excluding an entire class of vehicles from regulation under the Title must be firmly based in the language of the Title or its legislative history. Neither AMC nor Ford has shown a clear expression of Congressional intent that the vehicles with the characteristics they described, making them suitable for off-road operation, should be exempt from fuel economy standards established under the Title. Indeed, as has been demonstrated, the intent of Congress would have those vehicles subject to the Title.

*Passenger automobiles and nonpassenger automobiles.* This rule separates vehicles classed as automobiles into two subcategories—"passenger automobiles" and "nonpassenger automobiles". The definition of "passenger automobile" in this rule is taken directly from Section 501(2) of the Act. The "nonpassenger automobile" category is a residual subcategory, consisting of all automobiles which are not passenger automobiles. Chrysler and General Motors commented that the separation of automobiles into passenger automobiles and nonpassenger automobiles is proper under the Act, and that the NPRM placed all vehicle types in the proper category.

The types of automobiles to be included in these subcategories depend upon the interpretation given to "primarily" in the definition of "passenger automobile". An explanation of this agency's interpretation should serve to eliminate any remnants of the ambiguity which GSA perceived in the NPRM regarding the automobiles capable of off-highway operation. If "primarily" were interpreted to mean "substantially", as it is in the definition of "automobile" discussed supra, then almost every automobile would be a passenger automobile, since a substantial function of almost all automobiles is to transport at least two persons. The only nonpassenger automobiles under this interpretation would be those specifically excluded by the definition of passenger automobile; i.e., automobiles capable of off-highway operation and automobiles manufactured primarily for use in the transportation of more than 10 individuals. If, on the other hand, "primarily" is interpreted to mean "chiefly" or "predominantly", then all automobiles not manufactured chiefly for use in the transportation of

individuals would be nonpassenger automobiles, as well as the two types of automobiles excluded from the passenger automobile category by definition.

The NHTSA interprets the word "primarily" in the definition of "passenger automobile" to mean "chiefly". Based on the discussion below of that definition and its legislative history, Congress clearly intended that "passenger automobile" include only those vehicles traditionally regarded as passenger cars, i.e., vehicles whose major design features, including body style, reflect the purpose of carrying passengers. Examples of the design features which singly or in combination indicate that an automobile is not a passenger automobile are an open bed for carrying cargo, heavy duty suspension, and greater cargo-carrying than passenger-carrying volume.

As discussed in the above section entitled *Automobiles*, the use of "primarily" in the definition of "automobile" must be considered against a legislative backdrop of other statutes using the identical phrase, and the remedial purposes of the Act justifying a broad interpretation of those definitions which delineate the scope of its applicability. However, the use of "primarily" in the definition of "passenger automobile" brings other considerations into play. First, the remedial purposes of the Act do not require a broad interpretation of the definition "passenger automobile". Section 502(b) of the Act requires the NHTSA to set average fuel economy standards for nonpassenger automobiles at the maximum feasible level. Accordingly, the fuel efficiency of these vehicles will be improved regardless of whether they are classified as passenger or nonpassenger automobiles.

Second, interpreting "passenger automobile" as this rule does permits the NHTSA to make the passenger automobile and nonpassenger automobile categories under the Act parallel the vehicle classification scheme established under the National Traffic and Motor Vehicle Safety Act of 1966, 15 U.S.C. 1381 *et seq.* ("passenger car", "multipurpose passenger vehicle", and "truck"), and very similar to the scheme established under the Clean Air Act, 42 U.S.C. 1857 *et seq.* ("light duty vehicle" and "light duty truck"). Similar

classification of vehicles for all three regulatory purposes will serve to minimize the possibility of inconsistent regulatory requirements. Additionally, the manufacturers can quickly determine the class of their automobiles for fuel economy purposes by examining the classification of these vehicles under existing regulatory schemes.

Third, placing pickup trucks and vans in the passenger automobile category would be contrary to the intent of Congress, as discussed below.

In the House of Representatives, the automobile fuel economy provisions of H.R. 7014 were derived almost verbatim from the Sharp floor amendment to H.R. 6860. That amendment contained the following sections:

Section 301(a)(3) The term "passenger automobile" means any automobile which has as its primary intended function the transportation of not more than ten individuals.

Section 301(a)(4) The term "light-duty truck and multipurpose passenger vehicle" means any automobile which is not a passenger automobile.

By calling the category of automobiles other than passenger automobiles "light-duty trucks and multipurpose passenger vehicles", the bill did not draw on new, amorphous concepts, but, instead, chose terms with existing definitions under other Acts. Under the Clean Air Act, the EPA defined the term "light duty truck" at that time as "any motor vehicle rated at 6,000 pounds GVW or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use"; 40 CFR § 85.202(a)(5). Under the Vehicle Safety Act, the NHTSA at the time of the adoption of the Sharp amendment defined a "multipurpose passenger vehicle" as "a motor vehicle with motive power, except a trailer, designed to carry 10 persons or less which is constructed either on a truck chassis or with special features for occasional off-road operation"; 49 CFR § 571.3. In the Cost Savings Act, Congress itself defined "multipurpose passenger vehicle" in the same way as the NHTSA had in the above quoted regulation; 15 U.S.C. 1901(2).

Vehicles similar to AMC's Jeeps had been regarded by both the EPA and the NHTSA as automobiles with special features enabling off-highway use. The EPA had classified pickup trucks and cargo vans as light duty trucks, because EPA determined that these types of vehicles were designed primarily to transport property. Passenger vans and recreational vehicles, such as campers, had also been classed with light duty trucks, since these types of vehicles were derivatives of cargo vans and pickup trucks. The NHTSA made the same classification under the Vehicle Safety Act based on the fact that these vehicles were constructed on a truck chassis. Station wagons, on the other hand, have never been classified as light duty trucks by the EPA. The EPA determined that station wagons, which are built on passenger car chassis with passenger car-type springs and suspension systems, are designed primarily to transport people, with a subsidiary ability to transport property. The NHTSA reached the same result, since station wagons are built on a passenger car chassis. By using existing terms with existing applications, Congress gave a clear indication of the types of automobiles that were intended to be treated separately from passenger automobiles. If the word "primarily" in the definition of "passenger automobile" is interpreted to mean "chiefly", those types of automobiles would be treated separately from passenger automobiles. It seems clear that the House intended H.R. 6860 to be so interpreted.

The class "light duty trucks and multipurpose passenger vehicles" was deleted from H.R. 7014 when reported from Committee. However, the Committee Report states:

"Part A to Title V of H.R. 7014 as reported is (with one exception) substantively identical to Part I of Title III of H.R. 6860 as passed by the House." H.R. Rep. 94-340 at 87.

The exception noted in the report referred to the procedure for modifying the average fuel economy standards for passenger automobiles, which does not affect this discussion. The above statement in the House Report indicates that the substitution of an untitled residual category of automobiles for the "light duty truck and multi-

purpose passenger vehicle" category was not intended to broaden the scope of the passenger automobile so as to include vehicles designed principally for use in the transportation of property, or derivatives thereof. Hence, the House intended the word "primarily" in the definition of "passenger automobile" in H.R. 7014 to mean "chiefly".

The bill originally passed by the Senate dealing with automobile fuel economy standards was S. 1883. That bill set up two categories of vehicles, automobiles and light duty trucks, to which average fuel economy standards were applicable.

The "automobile" category in S. 1883 was identical to the "passenger automobile" category in the Act. The other category of vehicles, "light duty trucks", was defined exactly as the EPA defined it. The Senate thus manifested its intent to treat vehicles which had been classed as light duty trucks by EPA, specifically, vans, pickup trucks, general purpose vehicles, campers, and other similar vehicles, separately from the vehicles classified as "automobiles" under this bill, such as sedans, coupes, and station wagons. The language of S. 1883 was incorporated verbatim into the Senate version of S. 622.

Thus, both houses of Congress had expressed an intent that vehicles classed by EPA as light duty trucks be subject to average fuel economy standards separate from the standards imposed on passenger cars. Both houses presumably understood which types of vehicles had been classed as light duty trucks by EPA. There was, therefore, nothing for the conference to resolve on this point, since the House and Senate bills were in agreement. The adoption of the House language no more suggests a change from the Senate bill than the language in the House bill suggested a change from the Sharp amendment.

The conference report accompanying S. 622, the bill which became the Act, explains the classification of automobiles thusly:

"Automobiles are divided into two broad categories for purposes of prescribing fuel economy standards: passenger automobiles, and automobiles which are not passenger automobiles (e.g., certain light duty trucks, recreational vehicles, and other multipurpose

vehicles). Automobiles capable of off-highway operation . . . are specifically designated for inclusion in the latter category." S. Rep. No. 94-516, H.R. Rep. No. 94-700 (94th Cong., 1st Sess.) at 153.

This discussion gives no indication that the types of vehicles intended to be nonpassenger automobiles changed. Indeed, the types of vehicles intended by both houses of Congress to be nonpassenger automobiles are listed as examples of the kinds of vehicles which are not passenger automobiles under the Act. The NHTSA must interpret the word "primarily" in the definition of "passenger automobile" in the way that will effectuate the legislative intent. In light of the clear indications given by Congress about the types of vehicles intended to be nonpassenger automobiles, "primarily" must be interpreted to mean "chiefly".

Under this interpretation, there are four types of nonpassenger automobiles. The first, and most obvious, type of nonpassenger automobile is an automobile designed primarily to transport more than 10 persons. An example is a van with more than 10 seating positions. This type of automobile is excluded from the passenger automobile category by the Act.

The second type of automobile classed as a nonpassenger automobile by this rule is an automobile designed primarily, i.e., chiefly, for purposes of transportation of property. Section 523.5(a)(3) and (4) of the rule lists two different ways of determining when an automobile is designed primarily for use in the transportation of property. An automobile which can transport property on an open bed is not manufactured chiefly to transport individuals, since well over half of the available space on those automobiles consists of the cargo bed, which is exclusively cargo-carrying area. Further, this type of automobile is designed to carry heavy loads.

Automobiles classed as nonpassenger automobiles by this feature are pickup trucks and some passenger car derivatives with open cargo beds, such as the Chevrolet El Camino and the Ford Ranchero. El Caminos and Rancheros have been permanently altered so that they have much less passenger-carrying capacity and much more property-carrying capacity than the passenger

cars from which they are derived. The similarity of these vehicles to pickup trucks built on a truck chassis is indicated by their classification in the EPA/FEA 1977 Gas Mileage Guide as "standard pickup trucks". These considerations appear to the NHTSA to indicate that these vehicles are manufactured chiefly for use in the transportation of property, so the classification of these vehicles proposed in the NPRM is adopted in this rule.

Ford commented that it agreed that its Ranchero should be classified as a nonpassenger automobile. However, Ford urged that the Ranchero should continue to be tested under the passenger automobile test procedures, rather than the nonpassenger automobile procedures. EPA, in consultation with the NHTSA, agrees with Ford that the additional testing would be unnecessary, and so the Ranchero will be tested as a passenger automobile. This determination will appear in a rule specifying nonpassenger automobile fuel economy test procedures to be published by EPA in August.

An automobile which provides greater cargo-carrying than passenger-carrying volume is also an automobile designed primarily for purposes of transportation of property. Since more of the space inside the vehicle has been dedicated to transporting cargo, and such vehicles are typically designed to carry heavy loads, this agency concludes that the chief consideration in designing the vehicle was the ability to transport property. Automobiles that are classed as nonpassenger automobiles on the basis of this feature include cargo vans and multistop vehicles.

The third type of nonpassenger automobile under this rule is a derivative of an automobile designed primarily for the transportation of property. Section 523.5(a)(2) and (5) addresses this type of nonpassenger automobile. An automobile in which the cargo-carrying area has been converted to provide temporary living quarters is typically a derivative of a cargo van or pickup truck. Automobiles that are classified as nonpassenger automobiles on the basis of this feature include campers.

The other common derivative of an automobile designed primarily for the transportation of property is the passenger van. In essence, it is a

cargo van in which readily removable seats have been installed in the cargo-carrying area. This derivative can be easily converted back into an automobile with greater cargo-carrying than passenger-carrying volume, i.e., a cargo van, by removing these seats with means installed by the manufacturer for that purpose or with simple tools, such as a screwdriver or a wrench.

Although station wagons built on passenger car chassis have a convertibility feature, fold-down rear seats, this characteristic is not sufficient to exclude them from the passenger automobile category. Like the passenger van with removable seats, the station wagon with its seats folded down is easily converted back into the basic interior arrangement. Indeed, the conversion is easier since no tools are required. However, it is not the convertibility factor alone which results in passenger vans being classified as nonpassenger automobiles. It is that factor together with the derivative nature of those vans. Neither passenger vans nor station wagons have been permanently altered from the parent vehicles, as the El Camino/Ranchero vehicles have. Therefore, since a passenger van is designed with the same chassis, springs, and suspension system as a cargo van, it is treated in the same way as a cargo van. A station wagon is designed with the same chassis, springs, and suspension system as a sedan, and so is placed in the same category as a sedan.

The fourth and final type of nonpassenger automobile under this rule is an automobile capable of off-highway operation.

Ford and International Harvester commented that the 5 ground clearance measurements proposed in the NPRM would adequately serve to distinguish automobiles capable of off-highway operation from other automobiles. The GSA commented that all of these measurements relate solely to vertical obstacle negotiation potential, and suggested that NHTSA consider other factors, such as slope-climbing potential, vegetation override potential, and swimming potential, which would also make an automobile capable of off-highway operation. The NHTSA considered incorporating some of these other factors in the NPRM, but discovered that every vehicle with a

GVWR under 6,000 pounds which had one of these other features also had four of the five characteristics listed in the rule. Therefore, in the interest of avoiding unnecessary complexity, NHTSA has decided to list only the five characteristics given in the NPRM. If a need arises in the future to establish additional criteria, the NHTSA will initiate rulemaking.

*Vehicles with a GVWR between 6,000 and 10,000 pounds.* The Act classifies as an automobile any 4-wheeled vehicle propelled by fuel which is manufactured primarily for use on public streets, roads, and highways (except any vehicle operated exclusively on a rail or rails) which has a GVWR of not more than 6,000 pounds. Such a vehicle with a GVWR between 6,000 and 10,000 pounds may be classified as an automobile if the Administrator makes two findings. First, the Administrator must determine that average fuel economy standards are feasible for that type of vehicle. Second, the Administrator must also determine that either average fuel economy standards for this type of vehicle will result in significant energy conservation or that this type of vehicle is used for substantially the same purposes as a vehicle type with a GVWR of not more than 6,000 pounds.

The NPRM set forth the Administrator's proposed determination that average fuel economy standards are feasible for passenger cars with a GVWR between 6,000 and 10,000 pounds, and that these cars are used for substantially the same purposes as passenger cars with a GVWR of not more than 6,000 pounds. Chrysler, Ford, and General Motors commented that this determination was appropriate.

International Harvester expressed no view on the merits of the determination, but suggested that the determination should be made in a separate notice. Since a proposed determination has been published and comments received thereon, it would be unnecessarily burdensome and seemingly purposeless to request commenters to address the same proposal again. Moreover, delaying publication of a determination which can be made final now would serve no useful purpose.



The Automobile Club of Southern California urged that station wagons with a GVWR of greater than 6,000 pounds be classified as nonpassenger automobiles. The basis for this suggested disparate treatment is that station wagons can carry more passengers or more cargo than other passenger cars. It was noted that when the large wagon is carrying nine passengers, the passenger miles per gallon can be the same as that of an automobile with a higher fuel economy carrying fewer passengers. When carrying cargo, the wagon is, according to the Automobile Club, serving the same purposes as other nonpassenger automobiles. Notwithstanding these observations, they would also be applicable to station wagons with a GVWR of not more than 6,000 pounds. Therefore, this agency does not perceive sufficient basis in the Automobile Club's comments for

changing its treatment of station wagons with a GVWR greater than 6,000 pounds.

In light of the foregoing, Title 49, Code of Federal Regulations, is amended by adding a new Part 523, Vehicle Classification, to read as set forth below.

The program official and attorney principally responsible for the development of this rule are Douglas Pritchard and Stephen Kratzke, respectively.

Issued in Washington, D.C., on July 21, 1977.

Joan Claybrook  
Administrator, National Highway  
Traffic Safety Administration

**42 F.R. 38362**  
**July 28, 1977**



## PREAMBLE TO PART 523—VEHICLE CLASSIFICATION

(Docket No. FE-77-05; Notice 4)

This notice establishes average fuel economy standards for light trucks (pickup trucks and vans, generally) manufactured in model years 1980 and 1981. This notice also extends the applicability of light truck fuel economy standards and labeling requirements to vehicles with gross vehicle weight ratings (GVWR) from 6,001 to 8,500 pounds beginning in model year 1980. The issuance of these standards is required by section 502(b) of the Motor Vehicle Information and Cost Savings Act, as amended ("the Act"). The standards are intended to result in the savings of approximately 8 billion more gallons of gasoline over the life of the light trucks manufactured in these 2 years than would be saved if the standards were set at the estimated model year 1979 fuel economy levels for these vehicles. *Date:* These standards will apply in model years 1980 and 1981.

### *For further information contact:*

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### *Supplementary information:*

#### I. BACKGROUND INFORMATION

Title V of the Act provides for the establishment of average fuel economy standards for various types of automobiles. Under section 501(1) of the Act, the term "automobile" is defined to include "any 4-wheel vehicle propelled by fuel which is manufactured primarily for use on public streets, roads, and highways. . . ." and which either has a gross vehicle weight rating of 6000 pounds or less or which is rated between 6000 and 10,000 pounds and meets certain additional requirements (described below), as determined by the Secretary of Transportation. Auto-

mobiles manufactured primarily for use in the transportation of not more than 10 individuals are defined as "passenger automobiles" under section 501(2), and are subject to fuel economy standards established in or pursuant to section 502(a). The residual category comprised of all automobiles other than passenger automobiles is subject to fuel economy standards established pursuant to section 502(b) of the Act. They include most pickup trucks, vans, and light utility vehicles. Automobiles in this rapidly growing residual category were previously called "non-passenger automobiles" in rulemaking to establish fuel economy standards, but will henceforth be called "light trucks," to more closely reflect the common terminology used to describe the affected vehicles. This change is strictly one of name; it has no substantive significance.

Section 502(b) of the Act provides that fuel economy standards for light trucks must be established by the Secretary of Transportation beginning with the 1979 model year and for each model year thereafter. Authority to conduct the automotive fuel economy program was delegated by the Secretary of Transportation to the Administrator of the National Highway Traffic Safety Administration (NHTSA) in 41 F.R. 25015, June 22, 1976. The standards are *average* fuel economy standards. As long as the average fuel economy of the entire fleet of automobiles subject to a standard meet or exceed the standard, the fuel economy of some individual vehicles may be below the standard. Standards are required to be set at the "maximum feasible average fuel economy level" for each year, considering technological feasibility, economic practicability, the effect of other Federal motor vehicle standards on fuel economy, and the need of the Nation to conserve energy. See section 501(e). On March 14, 1977, standards for light trucks manufactured

in model year 1979 were published in 42 F.R. 13807. This notice establishes standards for light trucks manufactured in model years 1980 and 1981.

The starting point for this rulemaking proceeding was the information gathered during the rulemaking for model year 1979 conducted between March 1976 and March 1977. In March 1977, the agency issued a 29-page questionnaire (DN-001) to the major light truck manufacturers to obtain information relating to the light trucks currently produced by those companies and their capabilities to improve the average fuel economy of their light truck fleet for 1980 and 1981. During June 1977, the agency met with each of the domestic respondents to discuss their responses to the questionnaire. Because the responses to the questionnaire did not adequately discuss all of the manufacturer's capabilities for improving fuel economy, the agency sent special orders in August 1977 to the light truck manufacturers to obtain additional information regarding those capabilities. These were followed in September with special orders to component manufacturers and material suppliers to obtain their views and data regarding various technological methods for improving fuel economy.

On December 15, 1977, in 42 F.R. 63184, a notice of proposed rulemaking (NPRM) was published. It was based on the extensive material submitted in response to the information-gathering initiatives discussed in the preceding paragraph and on other information available to the agency. In addition to proposing standards for the 1980 and 1981 model years, the notice also proposed extending the applicability of the light truck fuel economy standards for the first time to certain vehicles with GVWRs between 6,001 and 8,500 pounds.

It should be noted that a truck's GVWR is the weight of the vehicle when loaded to maximum rated capacity. The curb weight of a light truck is typically much less than its GVWR. For example, a pickup truck with a GVWR of 5,600 pounds can weigh about 3,600 pounds, almost 1,200 pounds less than a full-size sedan. DN-067, App. V, Ex. D (Ford). A large van with a GVWR of 9,500 pounds (which would not be subject to these standards) can weigh

slightly less than that same 4,800 pound full-size sedan. *Id.*

In addition, the NPRM generally discussed the problems of captive imports, i.e., those produced outside the United States and Canada and imported by a domestic company for sale here, and set forth in detail two out of a wide range of possible alternative schedules for imposing a requirement that a company's "captive import" light trucks not be counted together with that company's domestic light trucks in the calculation of its average fuel economy for standards compliance purposes. The notice also proposed requiring fuel economy labeling of light trucks with GVWRs between 6,001 and 8,500 pounds beginning with the 1979 model year. Currently, consumers are not consistently provided with any reliable information regarding the fuel economy of these vehicles.

The NPRM also announced a public hearing to be held in Washington, D.C., on January 16 and 17, 1978, and invited applications for financial assistance from individuals or organizations which desired to participate in the rulemaking but which were financially unable to do so. Four applications by public interest groups for assistance were granted.

Concurrent with the issuance of the NPRM, the agency released three documents which discussed the basis for and impacts of the proposed standards. The first document, titled "Rulemaking Support Paper for the 1980 and 1981 Model Year Nonpassenger Automobile Fuel Economy Standards" (hereafter called the PSP), described the technical and economic basis for the proposed standards. The second document, titled "Preliminary Impact Assessment of the Nonpassenger Automobile Fuel Economy Standards for Model Years 1980 and 1981" (hereafter called the PIA), further discussed the economic impacts of the proposed standards on the manufacturers and on customers and certain alternatives to the proposal. The third document was a draft environmental impact statement.

The January 16-17 public hearing was not one required by statute, but was held to provide interested parties an additional opportunity to present their views on the proposal. The NHTSA Administrator and Deputy Administrator pre-

sided over the hearing. Thirty-one organizations or officials, including all the major domestic light truck manufacturers, several parts and materials suppliers, four Congressmen, labor union representatives, and several community organizations and public interest groups testified at the hearing. Representatives of the Environmental Protection Agency (EPA) and the Department of Energy (DOE) participated on the panel of officials which queried the witnesses.

A similarly wide range of individuals and organizations, including most of the hearing participants, provided written comments on the proposal. The NPRM established a deadline of January 30, 1978, for the submission of written comments on the proposal. A limited extension of this deadline was granted in 43 F.R. 3600 (January 26, 1978) for submission of supplemental material. However, in keeping with the agency's policy of considering later submissions to the extent practicable (DN-38, -41, -43) additional material provided by participants up to the time of final drafting of this notice was also considered.

Material contained in the RSP and the PLA, together with written submissions from interested persons, hearing statements, special order responses, and other relevant material were all considered in developing the standards promulgated in this notice. More detailed information on the technical and economic bases for these standards are contained in the Supplement to the Rulemaking Support Paper (hereafter called RSPS) and Final Impact Assessment (FIA). Copies of these documents will be available soon from the Office of Automotive Fuel Economy Standards, NHTSA, 400 Seventh Street, S.W., Washington, D.C. 20590.

## II. PRINCIPAL CHANGES MADE IN THE FINAL RULE

As a result of new information generated by the vehicle manufacturers and others and submitted in response to the NPRM, substantial changes to the proposed regulations have been made. The most common comment was that the proposed standards were too stringent and would result in reduced production and employment.

These comments were generally based upon information from the light truck manufacturers that was not available to the agency until after the issuance of its proposal. The standards have been established at levels significantly above the projected model year 1979 levels, but substantially below the proposed levels. Also, the agency has established a separate class for "captive import" light trucks beginning with the 1980 model year to prevent the standards from encouraging the increased importation of these vehicles and exportation of domestic jobs. A separate class with a lower fuel economy standard is also established for light trucks manufactured by companies which do not produce passenger automobiles and thus have limited access to passenger automobile engine and emission control technology. This latter class was adopted to take into account the difficulties of International Harvester Corporation in meeting fuel economy standards. Finally, the proposed requirement that light trucks with GVWRs of 6,001-8,500 pounds have fuel economy labels beginning with the 1979 model year was delayed at the request of EPA until the 1980 model year.

## III. COMMENTS ON THE NPRM AND NHTSA'S ASSESSMENT

### A. INFORMAL RULEMAKING PROCESS

The response of many commenters to the NPRM suggest it would be useful to recite several aspects of the theory of informal rulemaking, i.e., the process by which the fuel economy standards are developed. Informal rulemaking is essentially like the legislative process in which there is extensive, continuous gathering of information and adjustment of proposals. Many commenters appeared to regard the NPRM more as the culmination of the agency fact gathering process than as a further step in that process. The agency attempted to make the tentative nature of the proposal and the need for additional information as plain as possible. The agency itemized a variety of issues on which further comment and data were desired. It was expressly noted that such additional information could substantially affect the level of the final standards. (42 F.R. 63195.)

#### b. SCOPE AND APPLICABILITY OF THE STANDARD

Some commenters suggested that there was no forewarning that light trucks above 6000 pounds GVWR might be regulated in model years 1980-81. Neither the statute nor events support this contention. Given the well-known urgent need to conserve energy and the equally well-known bases for finding under section 501(1) of the Act that fuel economy standards should be extended for these vehicles, such extension should have been anticipated since the passage of the Act for these reasons alone. There were, moreover, far more direct reasons for anticipating the extension. The notice of proposed rulemaking (41 F.R. 52087, at 52088; November 26, 1976) for 1979 light truck fuel economy standards stated that the agency was considering regulating these higher rated light trucks beginning in model year 1980. The agency's March 1977 questionnaire made this intention clearer still by requesting information for these vehicles. Any remaining doubt was removed by the agency deputy administrator's prepared statement for a July 1977 Congressional hearing on fuel economy legislation. He announced that the agency would issue standards covering 1980-81 light trucks with GVWRs up to 8,500 pounds.

International Harvester Corporation (IH) argued that NHTSA lacks the authority to establish fuel economy standards for light trucks in the 6,001-8,500 pound GVWR range. DN-097, p. 2. This extension of the "automobile" category was proposed primarily because of the potential energy savings. The GVWR ratings of many light trucks have been raised over the past six years, resulting in the number of light trucks in the 6,001-8,500 pound range increasing from approximately a one-third share of total 0-8,500 pound GVWR sales to approximately a two-thirds share in 1977 and continuing into 1978. This trend was due in part to the fact that more stringent emission standards have been applied to vehicles with GVWRs up to 6,000 pounds, with the attendant need for catalytic converters and unleaded gas, DN-055, p. II-11. Ford Motor Company (Ford) endorses the extension of fuel economy standards up to the 8,500 pound GVWR level (DN-067, p. 15), and General Motors Corporation (GM) found the 8,500 pound GVWR level to be an appropriate limit for fuel economy

standards and "a reasonable cut off between the commercial and mixed personal/commercial use vehicles." DN-096, p. 7.

International Harvester disputed NHTSA's tentative conclusions that significant energy savings are achievement for the 6,001-8,500 pound GVWR light trucks, and that those light trucks are used substantially for the same purposes as the 0-6,000 pound GVWR fleet. Under the statute, the extension of the "automobile" category could be based on either of these findings. NHTSA reaffirms both of those findings. As noted in the preceding paragraph, there are currently almost twice as many light trucks being sold in the 6,001-8,500 pound GVWR range as in the 0-6,000 pound GVWR range. The agency's technical assessment (as set forth in the supplement to the agency's Rulemaking Support Paper) demonstrated that the over-6,000 pound GVWR trucks had as much fuel economy improvement potential as did the 0-6,000 pound GVWR light trucks on a per-vehicle basis. Congress found the fuel saving potential associated with the 0-6,000 pound GVWR light trucks so significant that it *required* that those vehicles be subject to fuel economy standards. Since the fuel saving potential of the latter vehicles is "significant," then the fuel saving potential for the 6,001-8,500 pound GVWR vehicles is significant too, a fortiori.

The matter is clearer still when it is considered that, as the NPRM noted, a 10 percent improvement in the fuel economy of the 6,001-8,500 pound GVWR light trucks would save about 1.4 billion gallons of gasoline per year over the lifetime of one model year's production, a savings closely approximating that resulting from the 1979 standard for 0-6,000 pound GVWR light trucks.

With respect to the question of the usage of all these light trucks, it is instructive to note the personal and recreational uses for which the trucks are frequently advertised. The Center for Auto Safety reviewed various periodicals going back to 1960 and concluded that the emphasis in light truck advertising has shifted from commercial capabilities to the sale of trucks as passenger car substitutes. DN-095, p. 12. This advertising trend is consistent with information submitted by the manufacturers which indicates

a mixture of commercial and personal usage for light trucks up to 8,500 pounds GVWR. DN-096, App. A, Figure A.1 (GM); DN-067, App. V, p. 5 (Ford); DN-120, App. M (Chrysler). See also DN-156 (Recreation Vehicle Industry Association).

The Public Interest Campaign argued that limiting the extension of the light truck category to 8,500 pound GVWR may not end the problem created when manufacturers increase the GVWR of their vehicles to avoid the applicability of standards. DN-160, p. 22. This problem is inherent whenever a regulatory line is drawn. It is likely that some light trucks which currently have GVWR's just below 8,500 pounds will in the future be rated by their manufacturers just above that point. However, the agency does not expect any circumvention of this type to be as prevalent as the shift in GVWR across the previous 6,000 pound dividing line. This expectation is based on the fact that relatively few light trucks are currently sold in the 8,000-8,500 pound GVWR range, compared to the number rated just below 6,000 pounds prior to the imposition of emission standards up to that level. Further, vehicles rated much above 7,000 pounds are equipped with heavy duty suspensions and other components which make them unattractive for personal uses. Thus, greater owner sacrifices would be required to shift over the 8,500 pound GVWR line than was the case for a shift over the 6,000 pound GVWR line. However, if the agency's projection in this regard proves to be incorrect, the light truck category could be further expanded to avoid circumvention of the fuel economy standards.

American Motors Corporation (AM) requested that light trucks sold to the Government for military use be exempted from the fuel economy standard. AM argues that such vehicles are not designed for use primarily on roadways, and are therefore not "automobiles" as that term is defined in section 501(1) of the Act. The Act contains no specific provision for exemption of military vehicles. The vehicles in question, the M-151 Jeep, are subject to emission standards under the Clean Air Act, despite the existence of such an exemption provision in that statute, 42 U.S.C. 1857f-2(b)(1). The existence of this emission data provides a potential source of fuel

economy data to determine compliance with fuel economy standards. The sales of these vehicles have historically not constituted a large enough portion of AM's light truck sales to substantially affect that company's fuel economy average. All information currently available to the agency indicates that the use of these vehicles differs in no significant respect from the use of nonmilitary Jeeps, which have previously been determined to be subject to fuel economy standards. 42 F.R. 38364, July 28, 1974. Therefore, based on this information, the military Jeeps are subject to fuel economy standards. In any event, the agency would be very cautious in projecting changes to those vehicles which might impair their functional attributes. The agency would consider any further submissions by AM or any other interested party relating to the extent to which the uses of these military Jeeps differ from the uses for which publicly marketed Jeeps are manufactured.

Two possible changes in the proposed classification scheme for light trucks were suggested in the comments. Ford argued that manufacturers be given the option of complying with a combined standard applying to all light trucks or with the proposed separate 2-wheel drive and 4-wheel drive standards. The combined standard would be set at a level between the 2-wheel drive and 4-wheel drive standards, with the exact level depending on the relative sales levels of those two classes of light trucks for a particular manufacturer. DN-067, p. 13. Chrysler and Toyota supported this option. DN-120, p. 7; DN-088, p. 7. International Harvester argued for a separate classification and standard for 4-wheel drive light trucks with GVWRs between 6,001 and 8,500 pounds, and 2-wheel drive light trucks which are derived from those vehicles. All of IH's light trucks would fall in that class. The Public Interest Economics Foundation made a similar proposal. DN-173, p. 5.

With respect to the Ford proposal, the three largest domestic light truck manufacturers and Toyota have all argued at some point in this proceeding for a single standard applicable to all light trucks. DN-001-02, p. 4 (Ford); DN-001-05, p. 9 (Chrysler); DN-096, p. 4 (GM); DN-088, p. 7 (Toyota). The main advantage of a single, all-inclusive standard is that it pro-

vides the greatest flexibility for a manufacturer with a broad product line to select among possible methods for achieving a given level of fuel economy improvement. For example, where separate classes exist, a manufacturer is required to make certain improvements to vehicles in each class in order to comply with the separate standards. On the other hand, if a single, all inclusive standard were established, a manufacturer would have the option of concentrating its available resources on making major improvements (such as a total vehicle redesign) to certain classes of vehicles. See 42 F.R. 63186.

However, the smaller manufacturers with more limited product lines may be disadvantaged under a single-standard approach, since the larger manufacturers may be able to avoid making changes to their vehicles in the same classes as the smaller manufacturers' vehicles, through the judicious use of the previously described flexibility. The smaller manufacturers would have to undertake product changes to their vehicles. This would increase the price of the small manufacturers' vehicles compared to the price of the similar vehicles of the large manufacturer. DN-098, p. 2 (AM). For example, AM and IH both manufacture primarily 4-wheel drive vehicles. Under a single-standard approach, the larger manufacturers could focus their fuel economy improvement efforts on their 2-wheel drive vehicles, an option unavailable to AM or IH. AM and IH would have to change their 4-wheel drive vehicles, possibly placing those vehicles at a competitive disadvantage vis-a-vis the 4-wheel drive vehicles of the larger manufacturers.

Although recognizing that the Ford proposal has some merit, the agency is extremely concerned that the classification of automobiles for fuel economy standards purposes not have a major anti-competitive effect. AM and IH rely extensively on the sale of 4-wheel drive vehicles to generate profits, to a much greater extent than do the larger companies. The agency observes that an optional combined standard could permit the companies with full product lines to obtain price and possibly performance advantages over AM and IH for comparable 4-wheel drive vehicles, through the mechanism described in the preceding paragraph. These competitive factors did not present as serious a problem in the

agency's 1979 light truck rulemaking, where standards were set at levels more in line with manufacturer's planned fuel economy levels. Therefore, in consideration of these advantages and the effect of the small manufacturers on level of the combined standard, the agency is not adopting the Ford proposal.

Nor can the agency accept IH's proposal, which might tend to exacerbate the trend toward higher GVWRs that has occurred over the past five years and which was due at least in part to different Federal standards above and below the 6,000 pound GVWR dividing line. However, the agency recognizes that IH has unique problems given its limited sales volume, restricted product line, and the fact that its engines are derivatives of medium duty truck (above 10,000 pounds GVWR) engines. Further, IH has not had experience with state-of-the-art emission control technology, which the other manufacturers have obtained in the passenger automobile market.

Therefore, NHTSA is establishing a separate class and fuel economy standard pursuant to section 502(b) of the Act for all light trucks manufactured by a manufacturer whose light truck fleet is powered by basic engines which are not used in passenger automobiles. This separate class is established for only two model years' duration. The agency concludes that IH should be able to achieve levels of fuel efficiency in line with the other manufacturers by the 1982 model year either through purchasing engines from outside sources or by making improvements to current engines. This resolution of the separate classification question satisfies the concerns expressed by IH in recommending a separate standard for 4-wheel drive vehicles with GVWRs over 6,000 pounds, without perpetuating the incentive for increasing light truck GVWRs above the 6,000 pound level or maintaining GVWRs at those levels.

An issue on which the agency requested comment in the NPRM (42 F.R. 63187) is whether a manufacturer's "captive import" light trucks should be permitted to be counted together with its domestic light trucks in the calculation of that manufacturer's fuel economy average for compliance purposes, or whether those trucks should be treated separately as are captive im-



port passenger automobiles under passenger automobile fuel economy standards. The former approach would encourage importation of foreign produced, captive import light trucks and the exportation of domestic jobs. The latter approach would prevent the standards from encouraging domestic manufacturers from taking these steps. The agency discussed in detail two of the many possible resolutions of the issue in the NPRM. One suggestion was to provide for separate treatment of captive imports beginning with the 1980 model year. The other suggestion permitted manufacturers to include captive imports for 1980 and 1981 (with separate treatment beginning with the 1982 model year) in their calculation of domestic fuel economy averages, but to limit the number of includable captive imports to 6 percent of the total number of light trucks manufactured in each class for each model year.

The first suggestion was supported by the United Auto Workers (DN-093); General Motors (DN-096, p. 15, Section III); and the Center for Auto Safety (DN-056, p. 115). The UAW (DN-056, p. 587) and the Center for Auto Safety base their suggestions on the belief that separate treatment of captive imports would encourage the earliest possible domestic production of these smaller, more fuel efficient trucks. On the other hand, Chrysler, Ford, and Toyo Kogyo argue that the Act provides no legal authority for requiring separate treatment of captive imports, and that such a requirement would promote neither domestic employment nor maximum fuel conservation (DN-120, p. 14 (Chrysler); DN-149, App. VIII, Tab. B (Ford); DN-103, p. 2 (Toyo Kogyo).) Alternatively, Chrysler argues that a requirement for separate treatment of captive imports should be delayed until such time as sales levels justify and lead-time permits their domestic production. DN-056, p. 373.

NHTSA believes that a requirement for the separate treatment of captive import light trucks would produce desirable results from the point of view of promoting energy conservation, preserving competition within the automobile industry, and promoting domestic employment. The agency also disagrees with the arguments that it lacks adequate authority to impose such a requirement. After reviewing the comments

of the various participants in the rulemaking proceeding, NHTSA finds no substantial reason to delay any longer the effective date for a requirement of separate compliance of captive import light trucks. Therefore, the regulations promulgated herein establish such a requirement beginning with the 1980 model year.

The importation of captive import trucks posed a threat to domestic employment similar to that posed by the importation of captive import passenger automobiles. The agency's authority to require that captive import light trucks comply separately with fuel economy standards is the authority to establish "separate standards for different classes" of light trucks in section 502(b) of the Act. Ford and Chrysler argue that this classification authority is restricted to classes based on attributes of a vehicle, such as size or intended use. However, these arguments overlook the broad meaning of "class" as defined in various dictionaries. Further, nothing in section 502(b) establishes the sort of limitation argued for by Ford and Chrysler. In fact, the Act's legislative history shows that a broad reading of the term is intended. The Conference Report (S. Rep. 94-516, 94th Cong., 1st Sess., at p. 155) states, in discussing the classification authority, that separate classes "could be based on functional classifications *or other factors*." (Emphasis added).

Ford and Chrysler also argued that the definitions of "manufacture" and "manufacturer" in section 501 of the Act include both domestically produced and imported automobiles, and therefore conclude that a fuel economy standard must apply to both categories or classes of vehicles. In fact, these definitions establish only that both of these classes of automobiles are to be regulated. They do not establish how the vehicles are to be classified for that purpose. They could be placed in the same or separate classes.

Ford also claimed that language on page 91 of the House Report, which contemplates the establishment of "similar" procedures for treating captive import light trucks as those specified for captive import passenger automobiles under section 503(b)(1) of the Act, requires that some transition period be established between model years when captive imports are fully includable

and fully excluded from domestic fuel economy average calculations. However, a "similar" requirement need not be *identical* in every respect. The separate classification was not immediately applied, but delayed one year to 1980. The manufacturers have been on notice for a substantial period of time that a requirement of this general nature was being seriously considered by the agency, permitting them to make their plans accordingly. 42 F.R. 13810-11; March 14, 1977.

Ford also pointed out that if a separate class were established for captive import light trucks, that class would be required to have a standard set at the maximum feasible level for that class. Ford argued that the agency had failed to set the standard for the captive import class at that level in the NPRM. However, NHTSA concludes that the maximum feasible average fuel economy level for the captive import class is the same as for the residual class of all other light trucks. That reference point is the same one suggested in the NPRM for captive import light trucks. Captive import light trucks currently have higher fuel economy in general than domestically manufactured light trucks, due to the fact that the captive imports are typically more compact in size. However, if the captive imports were subject to a more stringent fuel economy standard than all other light trucks, virtually identical vehicles (such as the Ford Courier, a captive import, and the Mazda pickup truck, which is imported by Toyo Kogyo of Japan) would be subject to different fuel economy standards. In that case, the captive import vehicle might be required to make fuel economy improvements (at some cost) which a similar vehicle imported by a foreign company might not have to make. Thus, the captive imports would be placed at a competitive disadvantage, due to the extra cost resulting from efforts to comply with fuel economy standards. In that case, where similar vehicles sell for different prices, it would be expected that the sales of the captive import vehicles would suffer, resulting in less energy conservation than would otherwise be the case. Therefore, the agency concludes that imposing a more stringent standard for captive import light trucks than is applicable to all other light trucks would be inconsistent

with the "economic practicability" consideration in section 502(e) of the Act.

Finally, Ford argues that a separate standard for captive imports does not promote the general purposes of the Act. The primary purpose of the Act is energy conservation. However, section 503(b), the "runway plant" provision, unambiguously establishes that Congress regarded domestic employment as a paramount consideration with respect to captive imports. The agency concludes that the separate standard for captive imports will promote energy savings since it will encourage greater efforts to improve the fuel economy of domestically produced light trucks and in the longer run will encourage use of an additional method (domestic production of small light trucks) for complying with fuel economy standards at the option of the manufacturer. Vigorous efforts to sell these domestic compact trucks would produce a market shift and concomitant energy savings. As measured by relative degree of marketing effort, the attitude of the major domestic producers toward smaller trucks has not been markedly positive. It is likely that it will take every available method or incentive to change this view and thus promote both energy savings and domestic employment. See DN-056, p. 346 (Chrysler) and p. 355-6 (remarks by NHTSA Administrator Claybrook). With a provision for the separate compliance of captive import light trucks, NHTSA will be able to base its fuel economy standards in future model years on the projected domestic production of these smaller trucks, providing a further incentive for switching from foreign to domestic production. As noted above, a second purpose of the statute is the promotion of domestic employment. Congressional Record H 5383, 5386 (daily ed., June 12, 1975). To the extent the captive import requirement provides an additional incentive to shift to domestic production of vehicles which are currently produced abroad and imported, domestic employment will benefit. Therefore, the agency concludes that this requirement promotes the general purposes of the statute.

It is important to note that the separate class for captive import light trucks does not prohibit the importation of such vehicles. It simply keeps the fuel economy program from inducing manu-

facturers to increase their importation of those vehicles instead of producing those small vehicles domestically or making improvements to their larger domestic vehicles. Assuring that those improvements are made was one of the express purposes of the sponsor of the "runway plant" amendment, Congressional Record H 5386 (daily ed., June 12, 1975). In view of the domestic manufacturers' investment in captive import light trucks, the profitability of those vehicles and competition from foreign manufacturers of similar vehicles, the agency anticipates that the domestic companies will continue to market their captive imports. If the foreign manufacturers improve the fuel economy of their compact light trucks, the domestic manufacturers will presumably make similar improvements to remain competitive.

#### b. FUEL ECONOMY PROJECTION METHODOLOGY

One of the problems which confronted the agency in developing the proposed standards was the absence of fuel economy test data for the light trucks in the 6,001-8,500 pound GVWR range. These trucks will be tested for emissions in a manner which yields fuel economy data for the first time beginning with the 1979 model year. Initial test data for these vehicles are just now becoming available. Therefore, the agency utilized a regression equation which relates vehicle characteristics such as engine displacement, test weight, and drivetrain ratios to measured fuel economy for passenger automobiles and light trucks. The regression equation was used to extrapolate and interpolate from actual test data to develop baseline fuel economy projections for vehicles which have not yet been tested, adjusting for differences in relevant vehicle characteristics. DN-055; DN-152. Many of the manufacturers objected to the use of this equation, but none offered a method before the issuance of the NPRM which the agency could demonstrate to be superior to the one it had developed.

Since the issuance of the NPRM, some of the manufacturers have begun testing prototype 1979 model year vehicles in the 6,001-8,500 pound GVWR class and have submitted their test results to NHTSA. This data would clearly be the best evidence of the actual fuel economy rat-

ings these vehicles will achieve in 1979, assuming that this early testing of development vehicles accurately reflects the fuel economy ratings those vehicles will achieve in final testing for that year. However, this may well not be the case, given that major improvements in fuel economy typically occur between early development testing and final emission certification and fuel economy testing. DN-259 (GM). The use of the regression equation would take this phenomenon into account, in that extrapolations and interpolation are made from final test data, not from early development vehicles. For this reason, GM, which concluded that the agency was "not too far off" in its baseline assessment, recommended that the agency wait until the 1979 certification data become available, and then modify the projected baseline where necessary. DN-056, p. 77. Ford, on the other hand, claims that development data for its 1978 vehicles closely approximated final certification values. DN-067, App. IV, Ex. A, p. 2. Ford's conclusion, however, relates to a model year in which emission standards were carried over from several prior years, by which time calibrations would be expected to more closely approach full optimization. This is not the case for the 1979 model year, when new emission standards and several test procedure amendments will apply for the first time to these light trucks. Therefore, Ford's 1978 experience is not a valid indicator for 1979.

Despite Ford's protests that the agency's methodology is inaccurate in projecting its fuel economy for 1980-81 and that its test data should be used instead to develop a baseline, NHTSA cannot conclude that Ford's procedure is superior. In fact, the agency has taken Ford's pre-1979 data and attempted to reconcile it with NHTSA's projections for Ford, and has concluded that the results yielded by the two procedures can be fully reconciled (in terms of projecting the same level of average fuel economy for the light truck fleet). See RSP-S.

Only in the cases of GM and IH has the agency been unable to reconcile completely the baseline information submitted by the manufacturers with NHTSA's projection. In these two cases, NHTSA has based its fuel economy projections on those manufacturers' supplied baselines. In the case of IH, the discrepancy is likely due to

the difference in engine efficiency between that company's engines and those of the other manufacturers (see section III.c.3 of this notice). In all other cases, the agency has used its originally projected baseline as set forth in the NPRM, with minor adjustments discussed in the RSPS-S.

#### C. METHODS FOR IMPROVING FUEL ECONOMY

The proposed standards were based on the use of technology which is either currently being used on some vehicles or which is under development with commercial use planned by at least some manufacturers in the 1980-81 time frame. The technological changes are, in general, minor, evolutionary changes which individually produce small benefits, but which when taken together can add up to a substantial fuel economy improvement. Although the manufacturers generally agreed with NHTSA as to which methods for improving fuel economy are feasible for the 1980-81 model years (cf. DN-067, p. 4 (Ford)), there was not general agreement as to the magnitude of the fuel economy benefit achievable through the use of each item or the extent to which the items could be used given the leadtime remaining until the 1980 and 1981 model years. The manufacturers' specific objections and NHTSA's response are set forth in the sections immediately following.

1. *Weight reduction.* The agency projected weight reductions ranging from approximately 69 pounds to over 600 pounds for portions of the individual manufacturer's fleets, averaging nearly 400 pounds per vehicle by 1981, compared to a 1977 base. 42 F.R. 63189. Between 200 and 300 pounds of this weight reduction was due to the use of aluminum, plastics, and high strength steel in certain specified light trucks, as substitutes for current materials. The remainder of the weight reduction was due to the introduction of new, more efficiently designed truck models which were either planned or being considered by certain manufacturers. Under current fuel economy test procedures, the benefit of this weight reduction would be realized only to the extent the reduction is great enough to place a particular vehicle in a lower "inertia weight class." Beginning with the 1980 model year, the width of these inertia weight class bands will generally be halved, thereby providing a greater incentive

for manufacturers to reduce the weight of their vehicles. However, the new "test weight" class changes may result in some vehicles being tested at higher simulated weights than under the old procedure, and other vehicles being tested at lower weights. DN-096, p. 11 (GM). It appears that the manufacturers have carefully targeted the weights of their current vehicles to take maximum advantage of the current inertia weight classes, so that the test procedure change will result in a trend toward lower measured fuel economy. This anomaly was taken into account in the methodology used to develop the proposed standards.

The agency projected the introduction of new, redesigned light trucks only where the manufacturers indicated, in response to a special order (DN-010) issued under section 505(b)(1) of the Act, that a new model was either planned by the manufacturer or at a development stage where introduction was judged feasible by NHTSA in the 1980-81 period. This conservative approach to new model introduction was taken by the agency despite the fact that additional new models would be expected for much of the domestic light truck fleet in the 1980-81 time frame if historical vehicle redesign cycles were followed (DN-001-02, Att. 1, p. 1 (Ford)), and despite the fact that the manufacturers have been on notice since December 1975 that they would be required to make maximum feasible improvements in their light trucks beginning with the 1979 model year, at least for their trucks in the 0-6,000 pound GVWR range. See section 502(b) of the Act. However, none of the manufacturers apparently plan to offer a new truck model in the 1980-81 time which is designed to achieve maximum feasible weight reduction.

Some of the manufacturers have projected feasible weight reductions of a magnitude very close to those projected by NHTSA. See, e.g., DN-097-A, p. 6 (IH); D-010-02, p. 8 (AM). Many of the manufacturers' projections of weight reduction potential for 1980 and 1981 have increased significantly during the course of the rulemaking, indicating that leadtime may still not limit this potential to currently planned weight levels as claimed by the manufacturers. DN-001-06, p. 7 (IH); DN-120, App. D, p. 2 (Chrysler); DN-001-01, p. 26 (GM 50 to 100 pounds for

1980) and DN-096, p. 11 (160 pounds). Ford's weight reduction projections have also varied considerably, and have become increasingly pessimistic. For example, Ford's projected average inertia weight for 1979 model year 2-wheel drive light trucks increased 123 pounds in five months, and the similar 1980 figure increased by nearly 300 pounds, between Ford's responses to NHTSA's August 10 special order (DN-010-02, App. F) and its comments on the NPRM (DN-067, App. IV, Ex. J, p. 2). See also DN-149 Volume II, Addendum II, p. 10, where Ford cites the "evolutionary" nature of its product planning in explaining how its projected average test weight increased as much as 188 pounds over 5 months. Part of these changes is due to changes in fuel economy test procedures, according to Ford. Ford now claims that its new, lightweight pickup truck, which will be introduced in the 1980 model year and will have a lower test weight than the current pickup truck by 263-396 pounds, will result in only a 1 percent fleet-wide fuel economy benefit. *Id.* p. 1.

In order to obtain independent verification of the weight reduction achievable through material substitution, the agency issued special orders to various aluminum, steel, and plastics suppliers. DN-018. These companies indicated that weight reductions in excess of those projected by NHTSA will be technologically feasible in the early 1980's, in some cases as much as 900 pounds total. See, e.g., DN-018-44 (Kaiser Aluminum Co.) and DN-018-60 (ALCOA).

The agency concluded on the basis of all this information that although the ultimate weight reduction potential for current light trucks is greater than that initially projected by NHTSA, reductions feasible in the near term (particularly the 1980 model year) are more limited. Further, it appears that in most cases, the weight reductions projected by the manufacturers differed from NHTSA's projections primarily due to discrepancies in estimated baseline inertia weights and in the effect of the inclusion of optional equipment on test vehicles. With respect to the latter points, NHTSA has deferred to the manufacturers' presumably better knowledge of their current light truck fleets. The agency has also not projected the redesign of some vehicle components when a complete vehicle redesign is

planned by the manufacturer in 1982 or 1983. Therefore, NHTSA has generally adopted manufacturers' projected weight reduction plans in the standard-setting analysis. However, NHTSA has projected, based on statements by GM, that GM could offer a redesigned pickup truck for the 1981 model year (as a mid-model year entry) resulting in an additional fleet average 250 pounds weight reduction for 2-wheel drive vehicles in that model year. NHTSA has retained its initial weight reduction projection for Chrysler, in the absence of any information which indicates that that projection is not feasible. NHTSA has made relatively minor upward adjustments to Ford's 1981 2-wheel drive weight reduction projection, and adopted Ford's other projections. However, NHTSA has been unable to completely reconcile all of Ford's various weight reduction projections, and remains skeptical, in view of the substantial weight reduction potential, that Ford's 4-year program will result in only the relatively small weight reduction benefit it apparently projects for its new pickup truck line.

2. *Aerodynamic improvements.* The proposed fuel economy standards were based on improvements in vehicle aerodynamic characteristics only where a manufacturer planned to introduce a new vehicle. In those cases, a 4 percent fuel economy improvement was projected. 42 F.R. 63189. Information submitted by the manufacturers indicates that the agency's projections in this area were pessimistic. On the basis of Ford's planned redesign of its pickup trucks for 1980, it appears that fuel economy can be improved up to 5 to 6 percent through reductions in vehicle frontal area and aerodynamic drag coefficient. Some of the manufacturers indicated that aerodynamic improvements could be achieved without undertaking a complete vehicle redesign, through minor body modifications such as the addition of air dams and the use of smaller mirrors. DN-001-01, p. 48, DN-096, App. B, p. 27 (GM); DN-120, App. G (Chrysler). Therefore the agency adopted the fuel economy improvement achieved for Ford's new pickup truck, and projects a fuel economy improvement of 2.3 percent for GM and approximately 1 percent for Chrysler in the 1980 and 1981 model years for minor aerodynamic improvements. (See RSP-

S.) No improvements are projected for the other manufacturers.

3. *Engine efficiency improvements.* In the NPRM, the agency projected that engine efficiency improvements on the order of 8 percent were feasible for all manufacturers other than AM, with AM capable of an improvement of 11 percent because of its currently less efficient engines. 42 F.R. 63190. Among the methods for obtaining this improvement are improved fuel metering, redesigned combustion chambers, increased expansion ratio and compression ratio, reduced internal friction, intake system and valve timing optimization, electronic spark advance, and improved exhaust gas recirculation. The percent fuel economy improvements projected for each manufacturer were based on responses to a detailed technical questionnaire (DN-001) sent to each manufacturer, and in particular a detailed response by Chrysler Corp. (DN-001-05). Subsequent engine mapping studies of typical light truck engines support the agency's original projections. Chrysler indicated efficiency improvements in the areas listed above would result in improvements at least of the magnitude projected in the NPRM. Improvements of this magnitude were also projected by III (DN-001-06, p. 24) and were in fact experienced in the past when engines were optimized. DN-149, Add. 2, sect. II.

However, at the January 16-17 public hearing, Chrysler indicated that it could not support engine efficiency improvements of the magnitude which NHTSA concluded Chrysler had projected as being feasible for 1980 in its questionnaire response. Several reasons were given by Chrysler at the hearing for this apparent change of position, including that the Chrysler questionnaire response information was merely "a gleam in the eyes of the engineers" and did not have "the highest level of corporate approval." DN-056, pp. 370-1. Subsequently, Chrysler advanced another theory for the apparent discrepancy between their questionnaire response and their position at the public hearing, i.e., that it misinterpreted certain language in the questionnaire. Chrysler argues that, in their interpretation, technology is "applied" not when it is used on production vehicles as NHTSA intended that

term in its questionnaire to be interpreted, but when technology advances one stage in the research and development process. DN-120, App. Q, p. 7. In effect, Chrysler now argues that not all of the technology in question will be available for the 1980 or 1981 model years. Chrysler also reduced some of its prior projections of expected fuel economy improvements attributable to technology.

Subsequent information submitted by the other manufacturers indicated that much of the technology projected to be used in the NPRM was either not feasible for 1980 or 1981, already being used and thus not a means available for future improvement, or part of the advanced emission control technology which would permit the attainment of more stringent 1979 emission standards with minimum reduction in fuel economy, but would produce no net fuel economy benefit. DN-067, App. IV, Ex. A, p. 2 (Ford). GM indicated that no improvement in fuel economy is expected from the use of electronic engine controls, since mechanical systems can be (and to some extent already have been) optimized to provide similar results. DN-146-A, pp. 47-53. An analysis by the Department's Transportation Systems Center refutes this claim. DN-283.

Several items of technology (other than improved exhaust gas recirculation or optimized engine calibrations) will be available for engine efficiency improvements. GM indicates that it will be making certain minor carburetor improvements for 1980. DN-096, p. 11. In 1979, Ford will be implementing certain engine efficiency improvements, such as increased compression ratio, for all light trucks with GVWRs between 6,001 and 8,500 pounds. DN-067, App. IV, Ex. A, p. 2. This benefit is accounted for by the use of the agency's regression equation, since trucks in the 0-6,000 pound GVWR category already have these improvements and those were extrapolated for the 6,001-8,500 pound GVWR trucks. However, two Ford engine families have not yet been optimized through combustion chamber revisions, but could be for 1980. *Id.* at p. 1. Ford also states that it will begin using some electronic engine controls beginning with the 1978 model year, but has no plan to use these controls on trucks until 1981, and then only in

California. *Id.* at 13-14. NHTSA sees no reason why these electronics could not be more widely applied in light trucks by Ford, especially since Chrysler may begin using some of these electronic controls as early as 1980 in trucks. DN-120, App. J. Chrysler also plans improved intake manifolds for two of its engines for 1980. *Id.* AM indicates that improvements of up to 5.5 percent are feasible (DN-098, p. 1) and stated at the hearing that improvements up to 8 percent might be feasible. DN-056, p. 468. IH originally projected substantial fuel economy improvements for the use of electronics, heat inlet charge, and combustion chamber and intake manifold redesign (the latter for the 1979 model year). DN-001-06, p. 24. IH's later submissions were less optimistic on this point. The potential for engine efficiency improvements by IH is highlighted by data submitted by that company (*Id.* App. G) which indicate that its four cylinder engines obtain the same or even slightly worse fuel economy than its V-8, about 13 mpg. The agency's analysis indicates that the IH V-8 engine too could be improved since it obtains about 1 mpg less than a comparable engine from Chrysler, Ford, or GM.

The agency concludes that fuel economy improvements up to the levels originally proposed are technologically feasible, but probably cannot be fully implemented in the 1980-81 period, because of competing demands (due to stringent emission standards) from passenger automobiles. Rather, the agency projects that manufacturers will be able to optimize emission control systems during this period to eliminate any fuel economy penalty resulting from changes in emission standards. In the case of GM and Chrysler, more extensive improvements are already planned, thus avoiding the leadtime problem. Therefore, the agency has incorporated those companies' projections of a net 2.4 percent (1.4 percent for 4-wheel drive light trucks) fuel economy improvement for Chrysler in 1981 and 1.2 percent for GM in 1980, beyond the optimization of the emission system. For the other manufacturers, no net improvement is projected (beyond emission control system optimization).

4. *Engine accessory efficiency improvements.* The agency originally projected that accessory

efficiency and accessory drive improvements amounting to 2 percent could be achieved. 42 F.R. 63189. The achievability of a 2-percent fuel economy improvement through the use of improved accessory drives was not generally challenged by the manufacturers. See, e.g., DN-001-05, Table 4 (Chrysler); DN-067, App. IV, Ex. E (Ford). However, questions were raised as to whether the leadtime is sufficient to implement these improvements by the 1980-81 model years. *Id.*, Ford. The agency agrees that leadtime may not be adequate to implement new accessory drives by 1981, unless already planned. A number of accessory efficiency improvements appear feasible for the 1980-81 period, however, such as improved water pumps and power steering pumps, reduced alternator loads, installing viscous fan clutches, the use of flex fans, and the optimization of accessory drive ratios. See, e.g., DN-096, App. B, p. 27 (GM). These efficiency improvements are projected by NHTSA to obtain a fuel economy improvement of approximately 1 percent by 1981.

5. *Diesel engines.* None of the manufacturers took major exception to the agency's projections with respect to the use of diesel engines. The agency's position on this matter was that until the unknown potentially adverse health effects associated with widespread use of diesel engines are better quantified, the maximum feasible use of these engines will not be projected. The agency took the posture of acknowledging the existence of any plans on the part of manufacturers to use diesels but did not base standards on further dieselization beyond that currently planned.

Citizens for Clean Air argues that the agency should not rely on the projected use of diesel engines to any extent until the issue of adverse health affects is resolved. DN-056, p. 563. Conversely, the Public Interest Campaign argued that the agency lacks authority to base fuel economy standards on less than maximum feasible use of diesels. DN-160, p. 6. That organization argues that it is for EPA, not NHTSA, to determine whether any health problems are associated with the use of diesel engines, and if a problem does exist, to set an appropriate emission standard.

The agency recognizes the danger in basing administrative standards on extra-statutory considerations. See, e.g., *Union Electric Company v. Train*, 127 U.S. 246, 257 (1976). However, NHTSA feels that there is at least a possibility that EPA may determine that certain currently unregulated emissions from diesel powered vehicles must be regulated, and that control of these emissions to the required level may either be impossible or may be achievable only with a fuel economy penalty so substantial that the diesel engine offers no net fuel economy benefit. NHTSA, EPA, and DOE are jointly studying these issues.

NHTSA deems it inappropriate to encourage the manufacturers to make investments in tooling for diesel engines when the use of those engines may not be tolerated in the future. Therefore, the final fuel economy standards for 1980-81 will not be based on any projected use of diesel engines, even when they are currently offered or planned. This will permit reduction of any current manufacturer plans to offer diesels if a health problem is found. This should not be viewed as a determination by the agency that unavoidable adverse health effects would result from widespread dieselization.

6. *Variable displacement engine technology.* NHTSA projected limited use of variable or dual displacement engine technology (based on the Eaton valve selector system) for the 1980 and 1981 model years. This technology would permit engines to operate on a portion of their cylinders during light load operating modes such as idle and cruising at constant speed.

The agency projected that a 10 percent fuel economy benefit would be achievable by vehicles using this technology. DN-056, p. 119 (Eaton); DN-001-05, Table IV (Chrysler); DN-001-06, p. 24 (IH). Ford indicated plans to use this technology as early as the 1978 model year (DN-001-02, Att. 14, p. 2) and IH stated that use was expected by the 1981 model year (IH, id).

Since the issuance of the NPRM, the prospects for use of this technology have apparently deteriorated considerably. Ford planned to use this system on its 300 CID, six cylinder engine, despite warnings from the system's developer that

that particular engine was the worst possible candidate for dual displacement. DN-056, p. 406 (Eaton). As Eaton had warned, rough running and lack of reserve power made the system unworkable in the six cylinder engine, resulting in the termination of that particular program. DN-067, Supp. App. IV, Ex. C (Ford). Ford now plans to implement the technology first on eight cylinder passenger cars, despite the fact that any drivability problems associated with the technology would be more likely tolerated by truck owners than by passenger car owners. Id. GM (DN-096, App. B, p. 30) and Chrysler (DN-120, App. F.) have also experienced a variety of problems with the technology, although GM still targets usage of variable displacement engines for the 1981 model year (DN-146-A, p. 143).

In view of the uncertain future of this particular item of technology, NHTSA is not basing the 1980-81 fuel economy standards on the projected use of variable displacement engine technology. Rather, it is recognized that technical problems remain to be solved, and if those problems can be solved, the use of variable displacement engines will provide the manufacturers with some degree of flexibility in meeting the standards.

7. *Turbochargers.* The agency did not base its proposed standards on the projected use of turbochargers. Turbochargers, when used with spark ignition engines, do not directly improve fuel economy, but rather increase engine horsepower, thereby permitting the substitution of smaller displacement engines in a given application. When used with diesel engines, turbochargers apparently result in additional benefits, including direct improvements in engine fuel efficiency and reduced particulate emissions. (DN-146-A, p. 143). The reasons for not basing the proposed standards on the use of turbochargers were primarily that in order to take optimal advantage of turbocharging, shifts in small engine production capacity would be necessary, and the smaller engines should be initially designed with turbocharging in mind. See 42 F.R. 63190. Leadtime was judged insufficient to accomplish this.



Although the agency's projected 10 percent fuel economy benefit from turbocharging was supported by participants in the rulemaking proceeding, so were the reasons supporting the need for substantial leadtime for any high production volume turbocharging program. DN-067, App. IV, Ex. D (Ford), DN-056, p. 715 (Schwitzer); DN-096, p. 32 (GM—with respect to leadtime issue). Therefore, the agency is not basing the 1980-81 fuel economy standards on the projected use of turbochargers, in conjunction with smaller displacement engines. However, at least one manufacturer apparently plans to use a limited number of turbochargers on light trucks in the 1980-81 time frame, and it is possible that others will as well. Therefore, turbochargers, along with variable displacement and diesel engines, are options that may be available to at least some of the manufacturers to provide the flexibility of additional methods for meeting the fuel economy standards.

8. *Automatic transmission improvements.* The agency projected that a 3.5 percent fuel economy improvement could be achieved for the portion of the fleet which uses automatic transmissions through the addition of lockup clutches to those transmissions. In addition, based on the indicated plans of Ford, it was projected that limited use of that manufacturer's integral overdrive automatic transmission could occur as early as the 1980 model year, producing a 10 percent benefit where applied. The 3.5 percent benefit from the use of the lockup clutch was based primarily on information from Chrysler. DN-001-05, Table IV. GM and Ford also supported the magnitude of that improvement. DN-096, App. B, p. 23 (GM); DN-067, App. IV, Ex. G (Ford).

An additional area of automatic transmission improvement is minor transmission efficiency improvements through the use of larger torque converters. Ford attributes a 0.5 percent fuel economy increase to these improvements (id.) and GM projects 2 percent, although that benefit is not fully additive to the 3.5 percent benefit for the use of the lockup clutch.

By the time of the January 16-17 public hearing, some of the manufacturers had reduced their preproposal projections of planned usage and

expected fuel economy benefit from the various automatic transmission improvements. Ford indicated that no integral overdrive transmissions would be available for 1980 model year light trucks, since it claimed that all those transmissions would be necessary for passenger car application. DN-067, App. IV, Ex. G, p. 2. No detailed information to support this claim was provided. Chrysler, which had originally claimed that the benefit associated with lockup clutch is 3.5 percent, and had raised that estimate on one occasion, subsequently claimed that the benefits were reduced to 3 percent, because of a reported need to mitigate drivability problems. DN-120, App. B, p. 1. Ford also claimed that it is unreasonable to expect it to implement the lockup clutch for 1980 and 1981, given that it is in the process of implementing the integral overdrive transmission, albeit over an extended period of years. Id., App. G, p. 2. With regard to the latter point, it should be noted that the other companies are also developing advanced transmissions similar to the Ford integral overdrive, but are planning on implementing the lockup clutch as an interim measure.

The agency concludes that by implementing lockup clutches, minor transmission efficiency improvements, and advanced transmissions like the integral overdrive to the maximum feasible extent, fuel economy improvements of 3.5 percent for the automatic transmission portion of the fleets of GM and Chrysler in 1980, and of AM and III in 1981, are feasible. In the case of Ford, a transmission efficiency improvement of 0.5 percent is projected for 1980. For 1981, the agency has adopted Ford's projection that its FIOD transmission will be available for approximately 18 percent of its light trucks. However, NHTSA finds no basis for concluding that the fuel economy benefit of that transmission will be less than the originally projected 10 percent, in the absence of any tests by Ford. In addition, NHTSA projects that Ford could offer a lockup clutch or other equivalent improvement on the remainder of its automatic transmission-equipped light trucks, in the absence of any any plan by Ford to make a complete switch to FIODs in the foreseeable future.

9. *Improved manual transmissions.* The agency projected the substitution of overdrive or wide ratio manual transmissions or manual transmissions with additional driven gears for current (primarily 3-speed) manual transmissions beginning with the 1980 model year. These transmissions have generally been available as options at extra cost on passenger automobiles for several years. A 5 percent fuel economy benefit was projected for these transmissions. GM supported this figure (DN-096, App. B, p. 24). Chrysler projected a 4 percent improvement (DN-120, App. L, p. 5), and Ford found the 5 percent figure to be at the upper end of the expected range. DN-067, App. IV, Ex. G. However, objections were raised as to the extent of the projected usage of these transmissions.

Beginning with the 1981 model year, GM apparently plans to make these more fuel efficient transmissions standard equipment on their light trucks. DN-146-A, p. 126. With GM taking this action, the other manufacturers would likely follow suit for competitive reasons, to the extent production capacity permits. Indications are that, at least by the 1981 model year, additional production capacity for improved manual transmissions will be available for Ford and Chrysler. DN-067, App. IV, Ex. G, p. 8 (Ford—additional capacity available for 1981); DN-056, p. 315 (Chrysler—current constraint on increased usage is marketing, not production capacity, and increased marketing efforts will be undertaken in the future). With respect to AM and IM, transmissions are supplier items, so that marketability is likely to be the only possible major constraint to the change to improved manual transmissions. Therefore, the agency has adopted the manufacturers' projections for the usage levels of these improved transmissions in 1980, and has revised upward by a moderate amount the projections of the companies with respect to the 1981 usage, where feasible. See RSP-8. The initially projected 5 percent fuel economy benefit per affected vehicle was retained from the NPRM.

10. *Improved 1-wheel drive transfer cases.* Another item of technology which was not included in the projections on which the proposed standards were based is the use of "part-time" 1-wheel drive, where "full-time" 4-wheel drive transfer cases are currently used. These new

transfer cases, which permit reduction of frictional losses by minimizing the number of transfer case components which are moving in the 2-wheel drive mode, should result in fuel economy improvements of 4 to 8 percent for those 4-wheel drive light trucks which currently use full-time 4-wheel drive. DN-184, Table B-1a (GM); DN-120, Att. B, p. 27 (Chrysler). Part of AM's and Ford's 4-wheel drive fleet also uses full-time 4-wheel drive currently, and NHTSA concludes that both could use this new transfer case. Therefore, fuel economy improvements projections have been included in the analysis for the final standards.

11. *Improved crankcase, rear axle, and transmission lubricants.* The agency projected fuel economy improvements of 2 percent for 1980 and 6 percent for 1981 through the use of a variety of improved lubricants. The principal lubricants expected to be available to achieve these benefits are lower viscosity rear axle lubricants (1 percent benefit) and friction modified motor oils such as those currently offered by Exxon and Arco in the aftermarket (5 percent benefit).

The vehicle manufacturers raised three major objections to the agency's projections in this area. First, it was argued that on the basis of the vehicle manufacturers' tests of these improved lubricants, the fuel economy benefits attributed to the lubricants were overstated. Second, the manufacturers noted that EPA approval of some of these lubricants (friction modified or synthetic base motor oils) would be necessary to use these lubricants in fuel economy testing, and that approval had previously been withheld. Third, it was argued that extensive durability tests of these lubricants would be necessary before they could be used as factory fill lubricants and recommended for use thereafter.

With respect to the first point, Exxon and Arco both supported the agency's 5 percent projection for friction modified motor oils. DN-056, p. 157 (Exxon—51½ percent on the EPA test); *Id.*, p. 516 (Arco—185 percent, based on road tests of 117 vehicles). Arco indicated that an additional 2 percent benefit (or a total of 7 percent for motor oils alone) was expected in less than 2 years, when that company expects to offer a lower viscosity version of its friction modified oil. *Id.*, p. 534. Many other oil companies will be offer-

ing lubricants of this general type in the near future. DN-113. GM projected fuel economy improvements of 3-6 percent from improved crankcase and axle lubricants (up to 4 percent with friction modified crankcase oils) but claimed that these improvements would not be feasible until the 1982 model year or later. DN-096, pp. 10-11.

GM, Ford, and Chrysler all submitted data showing lesser fuel economy improvements than shown by the oil companies. GM submitted data on the fuel economy benefit associated with low viscosity engine lubricants (DN-184, p. 2), which showed a lower fuel economy benefit than would be expected through the use of friction modified oils. DN-056, p. 516 (Arco). GM also submitted data on tests (generally 2-3 tests each) of various unspecified lubricants compared to an unspecified base oil, and found fuel economy improvements of up to 3.8 percent. Chrysler conducted a series of test on both the Arco and Exxon lubricants, and found fuel economy improvements of up to approximately 3 percent. DN-120, Att. B, p. 21. Most of these tests were conducted with reference to a 10W30 base oil (the Arco and Exxon lubricants are both 10W40), thereby possibly reducing the benefit which would be achieved had viscosity been held constant in the testing. Further, there appears to be no reason why 10W30 versions of these improved lubricants could not be made available for use by the manufacturers by 1980, which should result in fuel economy improvements in line with the Exxon and Arco data, which compared 10W40 oils. DN-056, p. 536, DN-185 (Arco). In addition, Chrysler's tests were conducted at low mileage, and showed a trend toward greater fuel economy improvement at higher mileage. Exxon indicated that the fuel economy benefit achieved by their lubricant would appear primarily after 2,000 miles, beyond the mileage at which Chrysler's tests were conducted. DN-056, p. 171. Taking these factors into account, Chrysler's data are not inconsistent with that of the oil companies.

Ford's test program for friction modified lubricants also showed low fuel economy improvements. DN-067, App. IV., Ex. K, p. 9. Tests were conducted on the Exxon oil and another blend (not Arco), and the base oil for

comparison purposes was 10W30, creating the same problem of comparability as the Chrysler tests. The Ford data consisted of triplicate tests of four vehicles using each type of lubricant.

With respect to improved rear axle and transmission lubricants, tests of Mobil's synthetic axle lubricant support an improvement of 1 percent. DN-109, DN-056, p. 695-6. GM projects an improvement of 0.7 percent for lower viscosity axle lubricants. DN-096, App. B, p. 8. Ford's tests of lower viscosity axle lubricants showed no fuel economy benefit, and it has not tested friction modified axle lubricants yet. DN-149, App. IV, Ex. K, p. 13. Ford claims that SAE papers on the subject indicate that no fuel economy improvement, rather than a 1 percent improvement, would show up on the current fuel economy test from the use of friction modified axle lubricants, but NHTSA finds nothing in the cited paper to support Ford's reading. Chrysler also found "no significant improvement" when switching to lower viscosity axle lubricant. DN-120, App. H, p. 3.

Ford projects that manual transmission vehicles will begin using lower viscosity automatic transmission fluid as a lubricant. DN-149, App. IV, Ex. K, p. 17. NHTSA's analysis indicates that such a change could, because of the similarity to using improved axle lubricants, result in a fuel economy improvement of 1 percent by 1981.

As to the second point, EPA has not previously approved the use of the improved crankcase lubricants in fuel economy and emission testing because of its valid concern that the lubricants may not be used in actual service by consumers. If the lubricants were used in EPA testing but not in actual service, the EPA tests results would be unrepresentative of actual driving experience, overstating actual fuel economy and thereby possibly misleading consumers. EPA is also concerned that some lubricant additives may reduce emission control system durability. Therefore, EPA has indicated that it would not approve the use of friction modified and synthetic engine lubricants until it received reasonable assurances that the lubricants would likely be used by consumers. Possible methods for demonstrating this likelihood are competitive retail prices, widespread commercial availability, and the existence

of a generic definition for these lubricants so that the vehicle manufacturers can identify them and encourage their use. DN-120, App. H, Att. B.

EPA has recently taken the position that friction modified and synthetic engine lubricants could be used in durability testing for 1980 model year emission certification. DN-195. Further, it appears very likely that remaining impediments to that use of these lubricants in fuel economy testing will be removed in time to permit full use of these lubricants as factory-fill for the 1980 model year. One previous impediment, the lack of a procedure to define these oils generically, is expected to be removed by December of this year, when the American Society for Testing Materials (ASTM) is scheduled to complete development of such a procedure. DN-056, p. 175.

The general availability of these lubricants in time for the 1980 model year, another requirement for their permitted use in fuel economy testing, also seems assured, given the expanding activity of the oil companies in this field. DN-056, p. 523, DN-112, 113. Current selling prices of many of these lubricants appear to be adequate to satisfy EPA's concern that it be likely that consumers will in fact use these lubricants. These latter two requirements are necessary to provide an assurance that the lubricants will be used as replacement lubricants, not just for fuel economy testing. Therefore, it is quite likely that these lubricants can be used by the 1980 model year in fuel economy testing. See also DN-160, p. 7 (Public Interest Campaign). However, neither this agency nor EPA can predict with complete certainty when approval of those lubricants will become possible.

With respect to the vehicle manufacturers' third objection, the agency concludes that the manufacturers should be able to complete all necessary durability testing of these friction modified lubricants by the 1980 model year. DN-096, p. 10 (GM). Judging from the data submitted by the manufacturers, the agency believes that testing of these lubricants has already progressed significantly. The oil companies which produce these improved lubricants have already conducted substantial testing of the lubricants before they were first marketed. DN-056,

p. 175-6 (Exxon). In fact, the oil companies argue that one of the major advantages of using the friction modified lubricants is that engine wear is reduced. Id., p. 535 (Arco). Since these oils also meet American Petroleum Institute Criteria for SE grade lubricants, engine durability should be improved. The oil companies found no reason to expect any adverse impacts from switching to these oils, which are of the same viscosity, come from the same base stock, and have most of the same additives as current factory fill oils. Id., p. 175 (Exxon). In fact, it appears that a less extensive durability program would be necessary in switching to friction modified oils than in switching to a lower viscosity oil, which GM indicates could be done by 1980. See also id., p. 296 (Ford). Ford apparently was willing to use these lubricants as early as the 1978 model year. DN-149, App. IV, Ex. K, p. 2. In fact, GM's oil durability test requirements which were provided to NHTSA recently refer only to tests for lower viscosity engine oils, not friction modified oils. DN-184, p. 4.

Therefore, the agency projects that a total fuel economy benefit of at least 3 percent is achievable through the use of improved lubricants (crankcase and axle). To assure ample time for the approval of these lubricants for use in vehicle fuel economy testing by EPA, NHTSA will not project their use prior to the 1981 model year. It should be noted that it is possible that, by that model year, further improvements in crankcase lubricants may result in additional fuel economy improvements, considering the agency's conservative projection of the currently achievable benefit. Also, the use of improved manual transmission lubricants may expand in 1981. This could provide a further safety margin for the manufacturers. However, since the eventual approval of these lubricants is beyond the agency's control, alternative fuel economy standards for the 1981 model year will be established. In the unlikely event that EPA has not yet approved the use of these improved lubricants by January 1, 1980, a lower fuel economy standard, excluding the projected use of the lubricants, will be in effect. If, as the agency expects, this approval is given by then, a higher (by 0.5 mpg) standard will apply. NHTSA expects that the manufac-

turers will still have a strong incentive to seek the expeditious approval of those lubricants, in order to use the lubricants in passenger automobiles as well as for light trucks.

12. *Reduced rolling resistance.* The agency projected that a fuel economy improvement of 4.5 percent would be achievable by the 1980 model year through the use of current or advanced radial tires on all light trucks, rather than the bias ply and bias belted tires currently used. This improvement was based on measured differences (using the tire companies' own test procedures) in tire rolling resistance between radial and bias tires and the known relationship between rolling resistance and fuel economy for passenger automobiles. See, e.g., DN-018-28, Table I (Goodyear); DN-018-49, p. 1 (Firestone); DN-018-46, p. 2 (Uniroyal). Further significant reductions in tire rolling resistance through increased tire inflation pressure and other means were anticipated for the near future. DN-018-28, p. 4 (Goodyear); DN-018-46, p. 2 (Uniroyal); DN-018-49, p. 2 (Firestone). Goodyear indicated that there is a possibility that their new elliptic tire, for which they project a fuel economy benefit of up to 6 percent compared to current radial tires, could be available for use on a portion of those light trucks which use passenger car type tires (primarily those under 6,400 pounds (GVWR) by the 1980 model year. DN-145; DN-146-A, p. 106-7. GM indicated that the same benefits achievable with the elliptic tire would be achievable with more conventional tires by increasing inflation pressure. *Id.*

After the issuance of the NPRM, it became increasingly clear that the fuel economy benefits associated solely with a switch to current radial tires would not equal 5 percent. A number of participants in the proceeding indicated that radial tires were inappropriate for use on off-road vehicles, due to the greater vulnerability of radial tires to sidewall damage. DN-056, p. 190 (Goodyear); DN-097, p. 5 (IH); DN-098, p. 1 (AM); DN-096, p. 9 (GM). In addition, problems exist in measuring the radial-bias tire fuel economy differential on current EPA fuel economy test procedures. Current test procedures apparently accurately simulate the characteristics of radial tires but overestimate the fuel economy

characteristics of bias tires. DN-067, App. IV, Ex. F (Ford); DN-018-49 (Firestone); DN-145 (Goodyear). The light tire manufacturers generally projected fuel economy improvements in the range of 2 percent for the portion of their fleets which use passenger car type tires, assuming that the optional "coast-down" test procedure could be used to measure the fuel economy benefit of switching to radial tires. DN-120, App. C (Chrysler—21½ percent); DN-906, p. 9 (GM—1½ percent); DN-067, App. IV, Ex. F (Ford); DN-088, p. 4 (Toyota).

In view of this new information submitted after the issuance of the NPRM, the agency has re-analyzed the potential for fuel economy improvements from switching to radial tires. On the basis of this detailed analysis of the tires currently used by the manufacturers on light trucks and current recommended inflation pressures, the agency now projects that fuel economy improvements ranging from 1.6 to 2.5 percent can be achieved for approximately 80 percent of the light truck fleet (excluding off-road applications) by switching to radial tires and by making minor inflation pressure increases. See RSP-S. It should be noted that to the extent new tire concepts such as the elliptic tire become available for use in light trucks in the 1980-81 period, the manufacturers will have additional flexibility in meeting the fuel economy standards. It is possible that the agency's originally projected fuel economy benefit will be achieved with these advanced tire concepts.

13. *Engine displacement or drive ratio reductions.* The agency projected that reductions in average engine displacement or drive ratios (gear ratios or axle ratios) or both could be implemented by the 1980 model year for each manufacturer. Specifically, it was projected that the product of engine displacement multiplied by total drivetrain ratio ( $CID \times N/V$ ) could be reduced 10 percent from 1977 levels for each manufacturer, in addition to reductions made in conjunction with weight reduction, to maintain constant vehicle performance. Drive ratio changes can be accomplished with relatively short lead time. Such reductions were projected to result in fuel economy improvements of approximately 4 percent. Reductions in engine displacement or drive ratio tend to diminish a

vehicle's acceleration and grade-climbing ability, thereby limiting the extent to which these reductions can be implemented without impairing the vehicle's functional capabilities.

It should be noted that these reductions are projections of reductions in average engine displacement or drivetrain ratio, and not every vehicle would be expected to achieve such a reduction. For example, vehicles incorporating overdrive transmissions would not be expected to fully implement such reductions and other vehicles would be expected to achieve reductions greater than 10 percent. The 10 percent figure was based on an analysis by the Department of Transportation which indicated that much larger reductions, i.e., as high as 30 percent, could be achieved without violating any of the minimum performance criteria specified by the manufacturers. DN-036, App. B. The agency used a 10 percent reduction instead of the 30 percent reduction projected in the document based on the agency's judgment that major reductions in acceleration performance occurring over a relatively short period of time might result in consumer dissatisfaction and possibly reduced sales, notwithstanding the ability of the vehicles to satisfy minimum performance requirements.

The manufacturers and many other participants in the rulemaking expressed concern as to whether the proposed standards could be achieved while still maintaining acceptable levels of light truck performance and utility. However, no participant advanced any specific vehicle performance criteria different from those previously analyzed by the agency, and no specific information was presented which contradicted the original conclusion as to the feasibility of a 10 percent reduction in engine displacement or drivetrain ratio or both. In fact, it appears that all of the manufacturers except Chrysler and IH have presented information which indicates that the 10 percent reduction is feasible and in some cases currently planned. DN-096, App. B, p. 25 (GM); DN-149, App. IV, Ex. I (Ford); DN-010-02, p. 10 (AM). Chrysler is apparently investigating certain specific approaches for reducing engine displacement or drive ratio. DN-120, Att. B, p. 25. Further, it appears that even with a 10 percent reduction in CID x N/V, Chrysler's average performance level for a given test weight

would be higher than those of many of the other manufacturers. See RSP-S.

An example of the difference between the arguments made at the January 16-17 hearing or in written comments and the actual manufacturer plans and capabilities relating to this issue is the position taken by Ford. At various times in the rulemaking, Ford stated on one hand that it could not reduce average engine displacement because of production capacity constraints (DN-149, App. IV, Ex. I, p. 2) and because such reductions might be fatal to their truck's functional capacities, but on the other hand that reductions in CID alone of more than 10 percent were planned. DN-010-02, App. F; DN-149, App. IV, Ex. I, p. 1. Ford similarly raised numerous objections to NHTSA's projections of feasible reductions in N/V ratio (DN-149, App. IV, Ex. 1), despite the fact that significant reductions of that parameter are also planned by Ford. DN-149, App. IV, Ex. I, p. 1. Thus, Ford objected strenuously to the feasibility of NHTSA's projections of CID x N/V reductions, despite the fact that it plans to make even greater reductions than those projected by the agency. With respect to the issue of whether these reductions will improve fuel economy by the amount projected by NHTSA, Ford's own test data for 1979 light trucks supports improvements of at least the level projected. See RSP-S.

Therefore, the reductions in engine displacement or drivetrain ratio projected initially by the agency have been retained, except where the manufacturers' plans exceed those projections. In the latter cases, the final projections were based on the manufacturers' plans. However, the agency projects a more limited 7 percent reduction for Chrysler in 1980. The agency projects that Chrysler may need an additional year to phase-in maximum reductions, given its limited current plans to make these changes and its past reliance on high performance levels as a marketing technique.

14. *Mix shifts.* For the 1980-81 model years, the agency projected negligible shifts in the 1977 product mix of the manufacturers beyond those projected by the manufacturers, or, looked at another way, the agency projected that the manufacturers would take such actions as necessary to assure that product sales would not shift to-

ward the higher test weight classes. The one exception to this statement is that the agency projected the sale of a limited number of "mini-vans" and other new truck concepts by General Motors in the 1980-81 model years. GM now indicates that sales of the mini-van, at least in a light truck configuration, are not planned. DN-056, p. 51-3. Because of the limited variety of market class offerings currently available in the light truck market, as compared to passenger automobiles, mix shifts could occur in the future primarily through new product offerings. New offerings which are not currently planned are not feasible in the limited time left before the 1980 and 1981 model years.

However, the agency projects that one limited type of mix shift is feasible for the 1980 model year. Because of recent changes in the fuel economy and emissions test procedures by EPA, optional equipment must be included on test vehicles if it is projected to be sold on 33 percent of the vehicles in a particular "car line." Under the previous test procedures, optional equipment was included only if it was projected to be sold on 33 percent of the vehicles in a particular "engine family." An "engine family" is, generally, a combination of basic engine and emission control systems, independent of the vehicle in which the engine is placed. This test procedure revision would be expected to have a random impact on the manufacturers, with no trend toward either higher or lower test weights. However, it appears that the manufacturers have carefully targeted the availability of optional equipment to take maximum advantage of the option rule (e.g., restricting options on some engine families to 30 percent usage), so that the change to the "car line" test will initially increase average test weights. However, given time between the test procedure change and the 1980 model year, there is no reason to believe that the manufacturers will not be able to reallocate their option offerings among engine families (e.g., restricted option sales to 30 percent for some car lines which currently have option sales levels of just 33 percent) to offset the effect of the rule change. In fact, it appears that such efforts are already planned. DN-146-A, p. 26-8. No net reduction in the total number of options

sold for all light trucks need result from such actions.

#### d. ECONOMY PRACTICABILITY

Relatively few objections were raised with respect to the costs attributed by the agency to various technological improvements. None of the comments suggested that the cost of implementing the technologies upon which the proposed standards were based would exceed the bounds of economic practicability. However, the manufacturers and others did argue that compliance with standards at the levels of the proposal, with to those commenters implied taking steps beyond implementing the projected technologies, would be economically impracticable. With respect to the latter issue, the difference between the agency's position and that of the manufacturers resulted from differences in the projected fuel economy benefit achievable with the various technological improvements and the extent to which these improvements could be implemented by a particular model year, and from the consequent assumption by the manufacturers that compliance measures beyond those specified in the proposal would be necessary. These differences have been discussed in section III.c above, and the final standards are established at levels closer to what the manufacturers projected than the proposed standards.

The increase in capital expenditures necessary for individual manufacturers to comply with the 1980 and 1981 standards is not large, either absolutely or relatively. Almost no increase in capital investment will be necessary for the manufacturers to achieve the standards instead of their lower recommended levels of average fuel economy. Typically, the difference between the standards and the recommended levels consisted of low capital measures such as performance reductions and lubricants. The capital investment necessary to make up this difference is not the full investment attributable to the standard. A portion, but not all, of the capital investment necessary to achieve the manufacturer's recommended levels is also attributable to the standards. The reason for not attributing all of this latter investment to the standards is that the agency anticipates that the need to remain competitive with other manufacturers and the mar-

ketability of increased fuel economy would have led the manufacturers to voluntarily make fuel economy improvements even if there were no fuel economy standards. The legislative record for the fuel economy provisions of the Act is replete with statements supporting the reasonableness of anticipating that result. Even if the entire capital investment for raising average fuel economy to the level of the standards were attributed to the standards, the increase in business-as-usual capital expenditures would be negligible, on the order of 3 percent. That small figure may be an overstatement because it is based on the pessimistic assumption that none of the capital investments could be off-set through normal business expenditures.

With respect to the issue of the specific types of analysis which should be undertaken in a determination of economic practicability, GM and Ford argued that NHTSA should consider the impact of fuel economy standards on the economy as a whole, not just the industry itself. DN-067, App. V, p. 1 (Ford); DN-096, App. D, p. 1. DN-056, p. 93 (GM). NHTSA recognizes the need to consider such factors as the impacts of standards on employment in the auto industry and its suppliers, inflation, vehicle sales, and the trade balance, and the agency did so in its impact assessment. DN-067, App. V, p. 1 (Ford). These matters are, of course, inter-related, in that product changes which are not accepted by some consumers will reduce industry sales, at least in the short term, with resulting decreases in employment and industry profitability. However, the agency believes that limited visible or otherwise perceptible product changes that may be necessary to comply with these standards will be accepted by consumers.

Several of the manufacturers urged that the economic practicability of the fuel economy standards be determined in the context of the other Federal vehicle standards which the manufacturers must meet. The assumption of these commenters appeared to be that it would be sufficient in making such an analysis simply to know the expenditures necessitated by the various Federal vehicle regulatory programs. The shortcomings of such an analysis are obvious. A definitive analysis of the sort urged by these commenters implies the availability of extensive

information regarding all of the manufacturers' resources and demands on those resources. None of these commenters provided or offered to provide such information.

Ford argues that greater emphasis should be placed on cost-benefit analysis in determining economic practicability. Id. Ford states that greater reliance should be placed on the language of section 325(a) of title III of the Act, relating to appliance energy efficiency and not automotive fuel efficiency. That section clearly envisions substantial reliance on cost-benefit analysis in setting standards. However, section 325 also goes to great lengths to differentiate between the concepts of "feasibility" and whether standards are "economically justified," with cost-benefit analysis being tied to the latter concept only. Since the language in section 502 of the Act is expressed in terms of "feasibility" and "practicability," the agency remains of the view that Congress intended that these terms be interpreted consistently in different sections of the same statute. See 42 F.R. 33537. Nevertheless, the agency notes that the benefits of the technology projected by NHTSA to be used in meeting the 1980-81 fuel economy standards would meet a cost-benefit test. This result could change depending on the retail price increases which the various manufacturers elect to impose, and depending on whether the manufacturers elect to purchase technology from outside sources or produce it themselves. See FIA.

No slowdown in the growth of the light truck market should occur as a result of these standards. Of all the projected methods for improving fuel economy, only engine displacement or drive ratio reductions and the use of diesel engines have the potential to be viewed by consumers as having adverse impacts on the utility of light trucks despite their contributions to increased fuel economy. In both cases, NHTSA projected changes no more stringent than those already contemplated by the manufacturers. The unplanned production of new, downsized trucks is not projected due to leadtime constraints and is not necessary to meet the standards promulgated herein. The other projected changes will hardly be perceived by vehicle owners, except with respect to slight initial vehicle price changes and significant fuel economy improvements.



The possibility of adverse sales and employment impacts resulting from retail price increases can be roughly projected through the use of economic models. Since the retail price increases associated with this rule are expected to be small, absolutely as well as compared to the fuel savings, compliance with these standards should not result in any significant sales or employment effects. See Final Impact Assessment. Similarly, the vehicle and price changes should not lead to retention by owners of older vehicles instead of buying the new more efficient ones.

GM argues that the fuel savings associated with the proposed standards are small in comparison to the risks associated with compliance with those standards. DN-096, App. D. GM's comment about risks clearly applies to standards set at the proposed levels. Since the final standards have been reduced as a result of new information received since the proposal and are near the levels recommended by the manufacturers, they presumably do not present the risks mentioned by GM. Because of changes in the baseline pursuant to manufacturers' comments, however, the savings are similar to those for the proposed standards. Those methods of improving fuel economy which involve possible marketing risk, such as engine displacement reductions, have been established at levels equal to GM's own projections. With respect to the magnitude of the potential energy savings associated with these standards, the light truck fuel economy standards should not be considered in a vacuum, but rather must be viewed in the context of the entire national energy conservation program. If each element of that program were to be cut back or eliminated on the grounds that the savings achievable with that element is small in comparison to the total energy problem, then the overall program could not be successful.

Ford objected to the exclusion of the cost for their new pickup truck line in the agency's economic analysis. This cost was not included in the agency's Preliminary Economic Impact Assessment because the new truck series was not an extraordinary cost associated with these fuel economy standards. The introduction of these new models is consistent with Ford's historic redesign cycle, and would have occurred at approximately the planned time regardless of the

existence of standards. DN-001-02, Att. 1, p. 1. Ford began work on the new truck prior to the enactment of the Act, and Ford stated that the fuel economy standards were only one factor considered in the design. DN-056, p. 225. Further, it is apparent from the other factors specified by Ford that the standards were not the only reason for making fuel economy improvements. The fact that the fuel economy standards were one of the concerns in planning that truck does not necessarily imply that additional costs were associated with that concern. Ford submitted no information which would indicate that the cost of introducing a new light truck for general marketing, competitive, and compliance purposes is any greater than the cost of introducing a new light truck for marketing and competitive purposes alone. Therefore, no costs associated with this new light truck, other than those for the technological improvements discussed in this notice (e.g., improved lubricants, radial tires, etc.) have been attributed to this rulemaking.

Ford also argued that the cost of electronic engine controls and three-way catalysts is so high that their use is unjustifiable for light trucks in 1980-81. DN-067, App. IV, Ex. A, p. 15. The agency has never suggested that three-way catalysts be used on all light trucks for 1980-81. With respect to the use of electronic engine controls for spark advance, air-to-fuel ratio, and exhaust gas recirculation rate, Ford submitted only "retail price equivalents" for the cost of those items, which includes an unspecified mark-up. Information currently available to the agency from suppliers of electronic components indicates that the cost of these items on a high volume, per unit basis would not justify retail price increases to the level specified by Ford (\$128). It is impossible for the agency to analyze Ford's objection as to the cost for variable displacement engine technology, which Ford also provides in terms of a retail price equivalent. *Id.* App. V, p. 13. Ford's objection to the agency's projected cost for engine displacement and/or drive ratio reductions (*Id.* App. V, p. 12) is based on Ford's assumption that it would have to introduce a new line of engines beyond its current plans. That assumption is unfounded. See section III.e.13 of this notice. Ford's objection to the cost of

weight reduction is also based on its assumption that product changes beyond those projected by NHTSA would be necessary to achieve the fuel economy benefit specified by the agency. As discussed in section III.c.1 of this notice, the agency's revised weight reduction projection for Ford is based on the agency's best estimate of the benefit achievable from Ford's planned new truck line and other actions such as option restrictions which have no associated cost.

Chrysler (DN-120, App. X) and III (DN-097-A, App. J) objected to the costs used by the agency for weight reduction by material substitution. Although Chrysler provided no basis for its estimate of a 35¢ per pound cost penalty for weight reduction by material substitution, and III failed to provide any detailed information (such as breakdowns of material and fabrication costs) in support of its claimed costs for various component substitutions, from other information it appears that the agency's cost projections for some components were too low. Alcoa (DN-018-60) provided detailed cost information for aluminum components, and other material suppliers provided similar information for various plastic and high strength steel items. Therefore, the cost estimate for weight reduction by material substitution has been adjusted in accordance with this newly supplied information. See Final Impact Assessment.

Chrysler also objected to the cost associated with diesel engines. Since the agency has not projected any use of diesel engines, the cost of dieselization is not attributable to these fuel economy standards, and is therefore not included in the agency's analysis. However, Chrysler correctly points out that the agency's cost estimate for diesel engines was based on the cost resulting from conversion of a current engine production facility to produce a dieselized version of an existing engine, and high volume sales of that engine. Docket FE-76-01-GR-003, Document 3, App. B. This scenario accurately reflects the dieselization program of only GM among the domestic manufacturers, at the present time. If a manufacturer were to purchase engines from an outside source, the cost of dieselization to the consumer would be much higher. DN-120, App. X. Chrysler and III both plan to continue pur-

chasing diesel engines, at least for the near future.

Perhaps the most frequent comment in the entire rulemaking involved the concern expressed by the light truck industry, Congressmen, community groups, and others that the proposed standards would result in substantial unemployment. Based on the post-proposal statements of the manufacturers, many commenters assumed that the agency had given insufficient consideration to the possible employment impacts of its proposal. This is manifestly not so. The agency sought, based on the information available to it, to propose standards that could be met without any significant employment impact. The analysis of that information indicated that no unplanned major design changes, new engines or new models would be necessary to meet the proposed standards.

In their post-proposal comments, the light truck manufacturers submitted new information which contradicted or clarified previous submissions or which filled previous information gaps. The new information showed that some technology would not yield the degree of fuel economy improvement indicated by the pre-proposal information and that some technology could not be used to the extent previously indicated by agency analysis. Some manufacturers noted that the technological projections underlying the proposal would not yield the proposed levels of average fuel economy and imputed to the agency an intent to require the manufacturers to make technological changes not feasible within the available leadtime or to make drastic reductions in product offerings. Neither the proposal nor its supporting documents were based on such an intent.

As noted above, the agency sought to propose standards that would not adversely affect employment. The agency continues to embrace that goal.

With respect to the issue raised by Ford and others, NHTSA has made adjustments to the proposed fuel economy standards in light of information submitted after the issuance of the NPRM in December. On the basis of all this information, NHTSA concludes that the fuel economy standards established herein can be met

without elimination of any current product offerings, and without any necessary loss in employment. By making the various relatively minor technological improvements discussed in this notice, NHTSA projects that each manufacturer can achieve the final standards. The impact on employment of making these vehicle improvements may well be positive. DN-160, pp. 16-18 (Public Interest Campaign), and FIA. The final standards are set at levels significantly lower than the proposed standards, due to the post-proposal submissions, comments, and data from a wide range of participants in the proceeding. Such revisions are entirely consistent with the informal rulemaking process, in which an agency makes a proposal based on the best information it then has available, solicits additional information from all interested individuals and organizations, and then establishes a final rule based on all available information, including changes based on comments on the proposal. See 5 U.S.C. 553, "International Harvester v. Ruckelshaus," 478 F.2d 615, 632.

Chrysler responded to the proposal by announcing that it was delaying the conversion of its Jefferson Avenue assembly plant in Detroit from the production of full-size passenger cars to van production. DN-120, p. 13. Chrysler stated further that issuance of final standards at the proposed level would lead to a closing of the plant permanently. Subsequently, the company indicated that the plant would definitely remain open if the standards were established at a much lower level specified by Chrysler. However, Chrysler declined to state the maximum level of standards which could be set without that company's deciding to close the plant. Therefore, the agency issued a special order under section 505(b) of the Act to Chrysler to obtain information related to Chrysler's statements, e.g., information about current and future van sales and production capacity. DN-191. Chrysler did not respond, or provided incomplete answers to several crucial questions and requests for documents in the special order, particularly those items bearing on the relationship of the proposed standards and decision to delay the conversion. DN-191, 191-A.

The final standards established by this notice should not cause or pose the possibility of plant

closings. They reflect the agency's consideration of all of the post-proposal information submitted by the manufacturers regarding the fuel economy improvements to be gained from particular technologies and the extent to which those technologies can be implemented in 1980-81. Significant changes have been made to the agency's original projections concerning these matters. There is ample leadtime for modest departures required from the manufacturer's plans for 1980 and the only slightly less modest extra effort necessary for 1981.

#### C. THE EFFECT OF OTHER FEDERAL MOTOR VEHICLE STANDARDS

A number of changes in Federal emission standards and associated test procedures will occur between 1977 (the base year for our calculations) and 1980-81. The major change is the tightening of the light truck emission standards from 2 grams per mile of hydrocarbons (HC), 20 grams per mile of carbonmonoxide (CO), and 3.1 grams per mile of oxides of nitrogen (NOx) for 0-6,000 pound GVWR trucks only to levels of 1.7/18/2.3, respectively, for 1979 model year light trucks with GVWRs up to 8,500 pounds. The manufacturers claimed fuel economy penalties ranging from 3 to 5 percent largely associated with the change in the NOx standard, with changes in the other two standards apparently having much less effect. In the 1979 fuel economy standard rulemaking, the same issue arose, and the agency took the position that none of the manufacturers had demonstrated the existence of an unavoidable penalty. 42 FR 13813-4. Only Chrysler and Ford have since submitted additional data or arguments to support their claims of penalties.

Chrysler's argument for a 3 percent penalty is based upon a comparison of 1978 data from the California light truck fleet subject to standards of 0.9/17/2.0 and the "49-state" fleet subject to Federal standards. NHTSA finds a number of serious errors in this comparison. First, the California 1978 standards are more stringent than the 1979 Federal standards. Chrysler assumes that the differences between these two sets of standards can be accounted for by making the assumption that the fuel economy penalty resulting from more stringent emission standards

is linearly related to the change in the NOx standard. Chrysler offers no basis for this assumed relationship, and NHTSA knows of no reason why such a relationship should exist, particularly when more advanced control technology may be available for compliance with the more stringent standard. Second, Chrysler compared these standards based on 1978 technology, while NHTSA methodology requires a comparison based on 1977 versus 1980-81 emission control technology. Therefore, under Chrysler's procedure, the fuel economy of vehicles subject to Federal emission standards has the advantage of one additional year of technology development, while the fuel economy of California vehicles is understated because it does not reflect, as it should, the technological development that will occur between 1977 and 1980-81. Thus, the measured penalty was inappropriately increased. In this rulemaking, NHTSA must determine the fuel economy achievable in 1980-81 based on the technology available and the emission standards applicable in those years, compared to the fuel economy that was achievable in model year 1977 with 1977 emission standards and control technology. Thus, Chrysler's analysis failed to account for advances in technology between 1977 and 1980-81. Third, and perhaps most significant, California experience has in general not been a valid indicator of 49-state experience with respect to emission standards effects. The reason for the past unrepresentativeness of California experience is that manufacturers cannot devote the same level of effort toward optimizing emission control systems and engine calibrations to minimize the effect of more stringent emission standards when those standards are applicable only to a small minority (perhaps 10 percent) of their fleet as it does when they are applicable to 90 percent of their fleet. Therefore, lower fuel economy would be expected if a particular set of (California) emissions standards applied to a minority of the fleet, and compliance was achieved by modifying a portion of the fleet which was originally designed to meet less stringent (Federal) standards. Therefore, the agency is unpersuaded by Chrysler's argument.

Ford attempted to demonstrate the existence of an emission standard-related fuel economy

penalty by two methods. First, it used an analytical method, called "engine mapping", which is designed to show the theoretical relationship between fuel economy and NOx emissions at various emission standard levels. This approach showed that a penalty of approximately 1 percent is theoretically achievable through optimal use of proposed technology. DN-067, App. VI, p. 2. Second, Ford submitted test data from 16 development vehicles which were calibrated to meet 1979 standards, and compared those results to 1978 emission certification data for identical vehicles (in terms of engine, transmission, inertia weight, and axle ratio). Under that procedure, a fuel economy penalty of 4 percent was measured. *Id.*, p. 5. NHTSA has a number of difficulties in accepting the results of either of these procedures and applying them to this rulemaking.

First, Ford's tests were conducted on development vehicles at initial calibration settings. Substantial improvements are feasible after the first testing of development vehicles, on a continuing basis through 1980 and 1981. Ford's analysis ignores this effect by comparing 1979 development data against data for 1978 vehicles, which have been subject to the same emission standards for several years, with ample opportunity to more closely approach full optimization. Ford denies the existence of such an improvement effect between initial development testing and final emission certification, but bases its argument on its experience in the 1978 model year, a year in which the emission standards did not change, and for which calibrations would be expected to more closely approach full optimization.

Second, Ford's engine mapping procedure does not measure the relevant fuel economy differential for the purposes of NHTSA projections. Ford's procedure attempts to measure fuel economy when meeting 1979 emission standards using 1979 emission control technology, and compares that value to fuel economy achievable using 1979 technology to meet 1977 model year standards. DN-149, App. VI. This procedure is patterned after that specified in section 502(d) of the Act. NHTSA, on the other hand, under section 502(e)(3) of the Act, must not only assess the effect of the change in emission standards between 1977 and 1979 (and on to 1980

and 1981, where standards will remain the same) but also consider the offsetting effect of differences between the technology and calibrations actually used in 1977 and the technology and calibrations which will be available for use in 1980-81. Thus, Ford's engine mapping analysis failed to consider advances in emission control technology between 1977 and 1979, and further advances achievable through 1980 and 1981. Instead, technology and calibration optimization were assumed by Ford to be fixed at a particular level. However, improvements in emission control technology have in fact occurred in this 1977-79 period. DN-067, App. IV, Ex. A, Att. 1. The small magnitude of the theoretical penalty claimed by Ford (1 percent) and the fact that advances in technology were not considered in developing that penalty indicates that the actual 1977-79 combined effect of emission standards changes and technology advances may well be an improvement in fuel economy, not a loss.

Third, it has been demonstrated that when passenger automobile NOx emission standards were made more stringent in 1977 (from 3.1 to 2.0 gram per mile), engine efficiency improvement more than offset any adverse impacts of the new emission standard, when various extraneous factors affecting fuel economy were disaggregated. SAE paper 760795. EPA expects that this historical effect should also be applicable in the case of comparable reductions in the light truck NOx emission standard. DN-255, pp. 1-2.

Therefore, NHTSA reaffirms its position that the 1979 change in Federal emission standards has not been demonstrated to cause an adverse impact on average fuel economy for light trucks.

Ford also argued that the agency has not adequately accounted for the effect of California emission standards, which are more stringent than Federal standards. DN-067, App. VI, p. 9. Ford claims that the effect of these standards is 0.1 mpg, or less than 1 percent. As EPA points out, Ford's analysis is based upon a comparison of 1978 California and 49-State vehicles, and does not accurately reflect the types of technology which will be used in 1980-81 to comply with California standards. Ford indicates that it will be using electronic engine controls in conjunction with three-way catalysts to meet these

more stringent California standards in 1981. DN-149, App. IV Supp., Ex. A, p. 5. (Ford). In fact, Ford has already begun using this type of technology on its 1978 California passenger cars. Vehicles using this technology are projected by Ford to achieve the same fuel economy as a 49-State vehicle in the same model year. NHTSA projects that, given current efforts to develop these advanced emission control systems for passenger car use, a sufficient number of these systems could be applied to 1980-81 model year California light trucks to eliminate the almost negligibly small effect of the California standards.

Several manufacturers have also claimed that EPA's recently issued advisory circular on changes to the transmission shift schedule for fuel economy and emission testing of manual transmission vehicles will result in a fuel economy penalty. DN-097, p. 4 (IH); DN-096, App. B, p. 25 (GM); DN-067, App. VI, p. 15 (Ford). Previously, the manufacturers have been permitted to shift manual transmission vehicles in fuel economy and emission testing according to the shift schedule specified in the owner's manual. According to EPA, some manufacturers have taken advantage of this provision by specifying shift schedules in the owner's manuals for certain vehicles which are not representative of typical driving. These new shift schedules have recommended shifting at extremely low engine speeds, or in some cases skipping gears in the shift pattern, resulting in artificially high fuel economy and low emissions. DN-255, Advisory Circular Number 72, January 19, 1978. Under the new requirements, three alternative shift patterns are permitted, either shifting at 66, 65, and 57 percent of rated engine speed into second, third, and fourth gears, respectively, or shifting at 15, 25, and 40 miles per hour into second, third, and fourth gears, respectively, or some other shift pattern which the manufacturer demonstrates to be representative of actual driving experience. *Id.* In the first two alternatives, skipping gears while shifting up (e.g., first directly to third or fourth) is not permitted.

The manufacturers have not yet had the opportunity to fully evaluate the effect of the change in the EPA test procedure on fuel economy.

DN-149, App. VI, p. 16 (Ford); DN-146-A, pp. 127-8 (GM). Early submissions by the manufacturers evaluated the impact of a requirement of shifting at 66 percent of rated engine speed for all gears, not the final EPA requirement, DN-096, App. B, Table B-7 (GM); DN-067, App. VI, p. 16 (Ford). Therefore, there is insufficient data to justify NHTSA's making an adjustment to the standards now. Although the test procedure change was intended to have the effect of reducing the measured fuel economy of some vehicles, and make the measured fuel economy more representative of on-the-road fuel economy, the manufacturers have as yet not quantified the magnitude of this effect. To justify any reduction, the agency would be required to determine the number of test vehicles which were shifted in an unrepresentative manner in 1977, the specific shift schedule permitted under the new requirements which would provide the most favorable results for individual manufacturers, and the fuel economy impact for individual vehicles of the change from 1977 shift patterns to this most favorable new pattern. This adjustment factor would be expected to vary from manufacturer to manufacturer, depending on the extent to which unrepresentative shift schedules were specified in 1977. Therefore, the agency will make no adjustment to the standards to account for this effect in the current rule-making, but will accept petitions from individual manufacturers which attempt to justify a reduction in the standards because of the test procedure change.

Ford also argued that changes in test procedures for measuring evaporative emissions from vehicle fuel tanks would cause a fuel economy penalty. This new procedure, called the SHED test, attempts to more accurately quantify the total amount of hydrocarbons which escape from the vehicle, other than as exhaust emissions. Ford's argument for a penalty of 0.08 mile per gallon is that the new test procedure will measure more escaped vapors than the old one, thus requiring the manufacturers to use more efficient evaporative emission control systems. These more efficient systems would, according to Ford, result in more hydrocarbon vapors being retained in the evaporative canister and fed through the

carburetor. However, Ford assumes that none of these vapors would be combusted and do work, but instead would be sent straight out the exhaust system. This additional hydrocarbon exhaust would be measured on the fuel economy test as fuel consumed, however, according to Ford. DN-149, App. VI, Ex. B. NHTSA cannot accept this analysis for two reasons. First, there is no reason to believe that all the extra gasoline vapors retained in the gas tank and sent through the carburetor would escape combustion. If some portion of this extra gasoline vapor is combusted and does work in moving the vehicle, then a benefit in measured fuel economy should result. Second, EPA indicates that improved evaporative emission control systems are available which make efficient use of the extra fuel which is retained in the canister rather than vented to the atmosphere. *Id.* Therefore, NHTSA concludes that Ford has not demonstrated that a fuel economy penalty exists due to its current evaporative emission control system, and that no penalty need exist if a more efficient design were adopted.

#### f. THE NEED OF THE NATION TO CONSERVE ENERGY

No detailed comments were received on this consideration in establishing the "maximum feasible average fuel economy level," other than that made by GM and addressed in section III.d of this notice. The agency believes that the need of the nation to conserve energy continues to be very substantial. See also DN-160, p. 20 (Public Interest Campaign).

#### g. BASIS FOR DETERMINING THE "MAXIMUM FEASIBLE AVERAGE FUEL ECONOMY" LEVEL

Many participants in the proceeding argued that the agency had established fuel economy standards at levels above those achievable by one or more of the manufacturers, and that such a procedure exceeds the agency's statutory authority. DN-097, p. 8 (IH); DN-096, p. 12 (GM); DN-149, App. VIII, Att. A (Ford); DN-120, p. 9 (Chrysler); DN-056-05 (Congressman John Dingell). On the other hand, the Center for Auto Safety argued that standards cannot be based on the "least capable manufacturer," citing supportive language in the Conference Report on the Act and the various provisions in the Act for compromise or elimination of civil penalties

in case of a failure to meet fuel economy standards. DN-155. See also DN-160, p. 8 (Public Interest Campaign).

It should be noted at the outset that the agency did not propose standards at levels which it concluded could not be met by one or more of the manufacturers. Rather, the agency postulated certain technological improvements, calculated the resulting fuel economy for the various manufacturers, and then discussed certain additional measures which could be undertaken by certain manufacturers to achieve the higher level of fuel economy at which the standards were set. 42 F.R. 63193. While it is true that the agency discussed the ability of some of the manufacturers to pay civil penalties in case of noncompliance, the payment of such penalties was viewed as an alternative (albeit an undesirable one) which some manufacturers might adopt rather than making all feasible fuel economy improvements. The manufacturers uniformly stated at the January 16-17 public hearing and in their written submissions that they would not opt for payment of civil penalties rather than making feasible fuel economy improvements, and the agency applauds this policy.

As will be discussed in section V of this notice, the final 1980-81 fuel economy standards are established at levels which NHTSA projects to be technologically feasible and economically practicable for all the manufacturers. Therefore, NHTSA need not address the comments relating to this issue.

#### IV. OTHER MISCELLANEOUS COMMENTS ON THE NPRM

AMC and Chrysler argued that fuel economy labeling of light trucks in the 6001-8500 pound GVWR range should not be required in the 1979 model year, as was proposed in the NPRM. AM argues first that requiring the fuel economy testing necessary to develop data for labeling would impose an unacceptable burden on them and on EPA. DN-098, p. 7. Both AM (id.) and Chrysler (DN-120, Att. B, p. 31) argue further that requiring labeling in 1979 will further impair the credibility of the fuel economy data as a valid representation of on-the-road driving experience. Chrysler bases its argument on the fact that EPA's current labeling procedures for

light trucks do not distinguish between vehicles which might be expected to fall into different "car lines" (e.g., Ford F-100 and F-200 series pickup trucks) since they are marketed as different models. Instead, EPA has in the past included all of a manufacturer's pickup trucks in a single car line, potentially creating a situation where a wide variety of vehicles with greatly different fuel economy ratings would have the same fuel economy rating on the labels.

NHTSA is of the view that defining "car line" in a manner more consistent with the way that term is used for passenger automobiles (i.e., defining vehicles marketed as different models to be different car lines, such as the F-100 and F-200) would solve much of this difficulty. However, to require fuel economy labeling for the 1979 model year, this problem would have to be resolved almost immediately. EPA has informed this agency earlier this month that it may not be able to resolve this problem in time to make the amendments effective for the 1979 model year. Therefore, the fuel economy labeling requirement will not be made applicable until the 1980 model year.

NHTSA concluded that the fuel economy labeling provision for 1979 was especially important in part because such a requirement would result in the generation of fuel economy data for vehicles with GVWRs between 6,001 and 8,500 pounds, in addition to the benefit to consumers of having this information. The Agency's effort to compensate for the current absence of that data was one of the manufacturers' primary objections to NHTSA's standard-setting methodology in this rulemaking. NHTSA deems it important to have this information as soon as possible to develop a fuel economy baseline based on test data for the light truck standards for model years after 1981. Therefore, NHTSA is requesting by this notice that each of the manufacturers provide by April 15 information on the extent to which they will provide NHTSA with fuel economy data (city and highway driving cycle) for their 1979 6,001-8,500 pound GVWR light trucks, and the time by which this testing could be accomplished. In view of the importance which the manufacturers understandably attach to baselines based on test data, the agency assumes that such data will be readily forthcoming.

ing from the manufacturers. To facilitate issuance of the notice of proposed rulemaking for 1982 and thereafter, these tests should be available by sometime this fall. Voluntary provision of this data by the manufacturers would obviate the need for NHTSA to exercise its authority under section 505(c)(1) of the Act to establish a rule which requires this testing on an expedited basis. Such a rule, if necessary, would likely require the testing by the end of this fall of the light truck configurations identified in 40 CFR 600.506(c).

NHTSA invited comment on the extent to and manner in which monetary credits could be transferred between the 1979 and 1980 model years, given the change in NHTSA's light truck classification scheme between 1979 and 1980. For 1979, light trucks are classified as either a single group or two groups, one consisting of "4-wheel drive general utility vehicles," and the other of "all other light trucks." For 1980, this classification will be changed, with 2-wheel drive and 4-wheel drive classes being established. However, section 508(a)(3)(B) of the Act prohibits applying credits generated by light trucks in one class to civil penalties incurred by light trucks in a different class. The Center for Auto Safety concludes that this requirement means that when the classification system is changed between model years, no carryover monetary credits can be applied unless the revised classes included identical vehicles for a particular manufacturer. DN-155. Ford, on the other hand, argues that manufacturers should not be penalized by the change in the classification scheme, so that credits earned by one class could be applied to penalties incurred by any other class which overlaps the first, at the manufacturer's option, between the 1979 and 1980 model years. DN-149, App. VIII, Att. C. No other participant in the proceeding addressed the issue in detail. Although NHTSA believes that all manufacturers can meet the 1980 standards, this issue may be of importance to some manufacturers in the 1980 model year. NHTSA wishes to give this issue further consideration and invites interested individuals and organizations to submit further comments on the question to NHTSA.

III objected to the limited time available for comment on the proposed standards. DN-097,

p. 2. The originally specified comment period of 45 days (42 FR 63184) was extended on a limited basis for 10 days (DN-38-A, 43 FR 3600, January 26, 1978), at the request of III among others (DN-038), and IH took advantage of that extension. DN-97-A. Further, the agency let it be known that it would consider late submissions to the extent practicable, given the need to issue the final standards as soon as possible. All comments received before issuance of the final rule were considered. DN-038-A. In fact, the agency has affirmatively sought out additional information relating to IH's capabilities to make fuel economy improvements to its light trucks after the close of the extended comment period. In addition, it appears that the comment period for the light truck manufacturers effectively began some five weeks prior to the publication of the NPRM, when the Department of Commerce (without authorization by this agency) provided copies of a draft NPRM to the manufacturers, which provided the substance of the agency's proposal. DN-191, question 10. Therefore, IH effectively had much more than the 90-day comment period it requested.

AM claimed that the agency violated section 502(b) of the Act by failing to promulgate the 1980 model year standard at least 18 months prior to the start of that model year. Section 501(12) defines "model year" to be "a manufacturer's annual production period (as defined by the EPA Administrator) which includes January 1" of the specified calendar year. If no annual production period exists, then the model year coincides with the calendar year. Id. AM states that its 1980 annual production period begins in July, 1979, and that the "18-month rule" therefore requires the issuance of the 1980 standard in January, 1978.

EPA has yet to determine a single model year for purposes of section 502(b) of the Act. Indeed, annual production periods appear to run from as early as that specified by AM to the beginning of a calendar year for many of the foreign companies. NHTSA has endeavored to provide approximately 18 months notice to the domestic manufacturers by the expeditious completion of this rulemaking. It is the agency's view that issuance of these by mid-March satisfies all statutory requirements.



Several of the manufacturers and other participants in the rulemaking proceeding argued that the percentage increase for the proposed standards over 1979 levels was not consistent with the one mile per gallon increments Congress established for passenger automobile standards in 1978-80. It should first be noted that the final standards have been set at levels which require a lesser relative improvement over 1979 levels than did the proposal. However, the fact that Congress in 1975, with less and much older information than NHTSA currently has available, set standards for a different type of vehicle at particular levels has little bearing on the question of what is the maximum feasible average fuel economy level for light trucks. If major improvements in fuel economy are economically and technologically feasible in a short time, then NHTSA is statutorily required to set standards at levels commensurate with those capabilities.

Several of the commenters made the related suggestion that to require a large percentage improvement in average fuel economy was presumptively inappropriate. The percentage change in fuel economy standards is, by itself, an unreliable indicator of the time and effort necessary to meet the standards. This should be obvious from the fact that some substantial fuel economy improvements can be made quickly with little or no additional capital investment while some fairly minor improvements may take much longer and require significant additional investment. Only by examining the technological changes underlying the differences in fuel economy standards for different model years can any meaningful judgment be made about the reasonableness and stringency of the standards.

#### V. CALCULATION OF THE 1980 AND 1981 STANDARDS

As discussed in section III.b of this notice, the basic methodology on which the final standards are based is unchanged from the proposal. Revisions have been made as noted above to the projected benefit achievable with the various items of technology. When these revisions are taken into account, the manufacturers are projected to be capable of achieving the following levels of average fuel economy for their light trucks:

	1980		1981	
	2-WD	4-WD	2-WD	4-WD
AM -----	23.6	15.1	24.1	16.2
Chrysler -----	16.4	14.4	18.0	15.8
Ford -----	16.6	14.6	18.7	16.3
GM -----	16.8	14.1	18.7	15.7
III -----	14.1	14.0	15.2	15.3
Nissan -----	24.4		25.2	
Toyo Kogyo -----	32.0		33.0	
Toyota -----	25.8	17.5	26.6	18.4
Volkswagen -----	18.0		19.5	

(1981 projections would be reduced by 0.5 mpg if improved lubricants cannot be used in fuel economy testing.)

As can be seen from the above information, Chrysler has the lowest projected fuel economy for 2-wheel-drive light trucks, and GM the lowest for 4-wheel drive. III would be subject to a separate standard, as previously discussed.

Because the agency's fuel economy projections for the major manufacturers fall within a relatively narrow range, and because insufficient lead-time exists for the manufacturers to make major improvements beyond those described in this notice, the agency finds it appropriate to establish the 1980 and 1981 standards at levels no higher than those projected for the manufacturer with the lowest fuel economy level. In view of this limited leadtime, the agency is making a slight downward adjustment to some of the levels projected for the "least capable" manufacturers to provide a safety margin for compliance and to create some additional flexibility for the manufacturers in meeting the standards. The maximum feasible average fuel economy levels, and therefore the fuel economy standards, are established as follows:

	2-wheel- drive	4-wheel- drive	Limited product line light truck
1980 -----	16.0	14.0	14.0
1981 -----	* 16.0	* 15.5	* 15.0

\* The 1981 model year standards are 0.5 mpg lower than the values specified above if approval of improved lubricants for fuel economy testing is not granted by the EPA by January 1, 1980.

## VI. STANDARDS FOR 1982 AND LATER MODEL YEARS

As discussed in section III of this notice, the limited leadtime available before the 1980 model year and slightly limited leadtime before 1981 model year have significantly restricted the extent to which the agency can project fuel economy improvements for the manufacturers. For example, no completely new vehicles or engines were projected by NHTSA unless those items were already planned by manufacturers. Therefore, the agency will issue in early 1979 a notice of proposed rulemaking to establish fuel economy standards for the 1982-1984 and possible 1985 model years. The much greater leadtime for these model years will, in turn, enable the agency to project major improvements in fuel economy beyond those set forth in this notice.

In virtually every technology category discussed in section III of this notice, significant potential exists for additional fuel economy improvements. For example, the agency projected weight reductions of approximately 200 pounds for the 1980-81 model years. Information available from material suppliers indicates that weight reductions of up to 900 pounds are currently feasible through substitution of lighter weight materials. If such material substitutions were undertaken in conjunction with a complete vehicle redesign (including some downsizing), it is possible that the average weight of light trucks could be reduced by a further 1,000 pounds, compared to current levels. Weight reduction of this magnitude could improve fuel economy by approximately 20 percent. Domestic production of small pickup trucks could be begun.

Additional lubricant improvements of as high as 5 percent were described above. Advanced tires could provide an additional 3 percent fuel economy improvement beyond 1981 levels. Turbocharged versions of smaller displacement engines could maintain vehicle performance while improving fuel economy by 10 percent. It is possible that further development work on variable displacement engine technology will solve current problems experienced by the truck manufacturers, resulting in a fuel economy improvement of 10 percent. Widespread use of advanced automatic transmissions similar to the FIOD should

result in a fuel economy improvement of 6.5 percent, beyond 1981 levels. Aerodynamic improvements should result in fuel economy improvements of at least 4 percent when current light trucks are redesigned in the 1982-5 period. A major area for potential fuel economy improvement is the use of diesel engines. Diesel engines have traditionally been used in medium and heavy duty trucks, and it is reasonable to expect that light truck purchasers would accept diesels in view of the fuel economy improvement of at least 25 percent associated with their use. Turbocharged diesel engines, which have appeared on larger trucks in the past, offer even greater improvements, while reducing particulate emissions and improving acceleration capabilities. However, questions relating to the effects on health and potential for control of diesel emissions must be resolved before NHTSA will base fuel economy standards on the use of diesel engines. Use of other engine types, such as the Ford PROCO (programmed combustion) engine, may also be feasible in the 1982-85 time frame.

## VII. IMPACT OF STANDARDS ON PETROLEUM CONSUMPTION

The standards presented in section V of this notice are projected to result in the savings of about 8 billion gallons of gasoline over the life of the light trucks produced in the 1980 and 1981 model years. Even gasoline savings of this magnitude will not eliminate the nation's dependence on foreign petroleum and the associated trade deficit. However, these standards constitute a significant part of the overall energy conservation program which can gradually reduce this dependence. See Final Impact Assessment.

The impact of our national dependence on imported petroleum has become a matter of increasing concern over the past several months. The national trade deficit was over \$26 billion for 1977, while the cost of imported petroleum was almost \$45 billion in that same year. The national cost of oil imports has been increasing at a rate of over 30 percent per year since 1975. Petroleum now constitutes about one-third of all imports. The impact of this large trade deficit on domestic inflation is substantial. Although the light truck standards will not solve this prob-

lem by themselves, they could reduce total petroleum imports by \$1 billion in 1985 and \$2 billion in 1990. NHTSA deems this a significant benefit for the nation, and an important step in attempting to reduce the overall import problem.

#### VIII. ECONOMIC IMPACT OF STANDARDS

The economic impact of these standards was evaluated. This evaluation concludes that retail price increases in the range of sixty dollars total are expected from the actions necessary to achieve compliance with fuel economy standards for 1980 and 1981. This relatively small increase compares to a lifetime operating cost reduction of about 600 dollars per vehicle, due to the reduction in gasoline consumption for these light trucks. It is projected by NHTSA that light truck sales and related employment in the light truck industry will be at higher levels in 1980-81 than currently exist in the absence of some unrelated and currently unforeseen downward turn in the national economy. The largest factor in this trend toward higher sales and employment is the underlying increasing consumer demand for these vehicles. It is projected that improving the fuel economy of light trucks will have a small effect in improving sales levels, since good fuel economy is a desirable vehicle attribute. Slightly higher retail prices resulting from the fuel economy standards might tend to slightly offset this trend toward higher sales. However, the effects of improved fuel economy and slightly higher retail prices are small in comparison to the underlying sales trend. Therefore, NHTSA concludes that the manufacturers' efforts to comply with fuel economy standards will at worst cause no loss in sales or employment, and may result in slight gains.

#### IX. ENVIRONMENTAL IMPACT OF THE STANDARDS

The environmental impact of the standards was also evaluated, in accordance with section 102 of the National Environmental Policy Act, 42 U.S.C. 4332. Copies of the agency's final environmental impact statement are available from the Office of Automotive Fuel Economy, at the address set forth at the beginning of this notice. That document sets forth the basis for the agency's conclusion that the standards will result in no significant adverse impacts on the environment. In fact, the major environmental impact of the standards, reduction in petroleum consumption, should reduce current adverse impacts resulting from high levels of petroleum exploration, drilling, transportation and refining. One type of technology which improves fuel economy but which may have adverse environmental effects is the use of diesel engines. Because of possible adverse environmental effects associated with the use of diesel engines, the agency set standards at levels which could be met without the use of those engines.

Authority: Sec. 9, Pub. L. 89-670, 80 Stat. 981 (49 U.S.C. 1657); sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2002); delegation of authority at 41 FR 25015, June 22, 1976.

The program official and lawyer principally responsible for the development of this proposed regulation are George L. Parker and Roger C. Fairchild, respectively.

Issued on March 15, 1978.

Joan Claybrook  
Administrator

**43 F.R. 11995-12013**  
**March 23, 1978**



## PREAMBLE TO AMENDMENT TO PART 523—VEHICLE CLASSIFICATION

[Docket No. FE 77-05; Notice 7]

*Action:* Technical amendment.

*Summary:* This notice amends the definition of the term "automobile" as it appears in the agency's fuel economy vehicle classification regulations. The amendment is intended to clarify the applicability of the light truck fuel economy standards for model year 1980 and thereafter.

*Effective date:* This amendment is effective January 15, 1979.

*For further information contact:*

Francis J. Turpin, Office of Automotive Fuel Economy Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202) 472-6902).

*Supplementary information:* Section 501(1) of the Motor Vehicle Information and Cost Savings Act ("the Act"), 15 U.S.C. 2001(1), defines the term "automobile" for purposes of establishing the applicability of automotive fuel economy standards and other fuel economy-related requirements. That definition includes within the scope of that term any "4-wheeled vehicle propelled by fuel which is manufactured primarily for use on public streets, roads, and highways (except for any vehicle operated exclusively on a rail or rails), and which is rated at 6000 pounds gross vehicle weight or less." That section also authorizes the Secretary of Transportation to expand the "automobile" category and thereby regulate additional vehicles if certain findings are made. These findings relate to the feasibility of standards for such vehicles, the energy savings potential associated with regulating the vehicles, and the usage of the vehicles.

On March 23, 1978, in 43 FR 11995, the National Highway Traffic Safety Administration (NHTSA) published the required findings with

respect to certain vehicles (called "light trucks") with gross vehicle weight ratings between 6001 and 8500 pounds. The vehicles in the 6001 to 8500 pound GVWR range which were excluded from the expanded automobile category were a relatively small number of vehicles with either curb weights in excess of 6000 pounds or with frontal areas of more than 46 square feet (principally step-vans), or both. These vehicles were excluded because of design features which would largely preclude personal use thus making regulation as heavy duty vehicles proper (41 FR 56316).

The Environmental Protection Agency (EPA), which conducts fuel economy testing under the Act, has recently informed NHTSA of an error encountered in measuring the frontal area of some of the step-vans. It appears that in order to exclude the intended larger-frontal area vehicles, the regulatory dividing line must be reduced from 46 to 45 square feet. The number of vehicles affected by this change is extremely small in relation to the number of light trucks in the 6001 to 8500 pound GVWR range. Therefore, NHTSA is amending the appropriate regulatory language to correct this error.

Since this amendment is in the nature of a technical correction and affects such a small number of vehicles, it is determined that a notice of proposed rulemaking is unnecessary and contrary to the public interest, within the meaning of 5 U.S.C. 553(b). Therefore, this notice will be issued as a final rule.

NHTSA has also determined that this document does not contain a significant regulation requiring a regulatory analysis under Executive Order 12044. Further, this action does not require an environmental impact statement under the National Environmental Policy Act (49 U.S.C. 4321 et seq.).

This amendment is effective immediately, since its effect is to relieve a restriction. See 5 U.S.C. 553(d) (1).

In consideration of the foregoing, 49 CFR, Chapter V, is amended . . . .

AUTHORITY: Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2002); delegation of

authority at 41 FR 25015, June 22, 1976, and 43 FR 8525, March 2, 1978.

Issued on January 15, 1979.

Michael M. Finkelstein  
Associate Administrator  
for Rulemaking

**44 F.R. 4492-4493**  
**January 15, 1979**

## PART 523—VEHICLE CLASSIFICATION

Sec.

**523.1 Scope.**

**523.2 Definitions.**

**523.3 Automobiles.**

**523.4 Passenger automobiles.**

**523.5 Nonpassenger automobiles.**

AUTHORITY: Sec. 301, Pub. L. 94-163, 80 Stat. 901 (15 U.S.C. 2001).

### § 523.1 Scope.

This part establishes categories of vehicles that are subject to Title V of the Motor Vehicle Information and Cost Savings Act, 15 U.S.C. 2001 *et. seq.*

### § 523.2 Definitions.

“Approach angle” means the smallest angle, in a plan side view of an automobile, formed by the level surface on which the automobile is standing and a line tangent to the front tire static loaded radius are and touching the underside of the automobile forward of the front tire.

“Axle clearance” means the vertical distance from the level surface on which an automobile is standing to the lowest point on the axle differential of the automobile.

“Basic vehicle frontal area” is used as defined in 40 CFR § 86.079-2.

“Breakover angle” means the supplement of the largest angle, in the plan side view of an automobile, that can be formed by two lines tangent to the front and rear static loaded radii arcs and intersecting at a point on the underside of the automobile.

“Cargo-carrying volume” means the luggage capacity or cargo volume index, as appropriate, and as those terms are defined in 40 CFR 600.315, in the case of automobiles to which either of those terms apply. With respect to automobiles to which neither of those terms apply, “cargo-carrying volume” means the total volume in cubic feet rounded to the nearest 0.1 cubic feet of either an automobile’s enclosed nonseating space that is intended primarily for carrying cargo and is not accessible from the passenger compartment, or the space intended primarily for carrying cargo bounded in the front by a vertical plane that is perpendicular to the longitudinal centerline of the automobile and passes through the rearmost point on the rearmost seat and elsewhere by the automobile’s interior surfaces.

“Curb weight” is defined the same as “vehicle curb weight” in 40 CFR Part 86.

“Departure angle” means the smallest angle, in a plan side view of an automobile, formed by the level surface on which the automobile is standing and a line tangent to the rear tire static loaded radius are and touching the underside of the automobile rearward of the rear tire.

“Gross vehicle weight rating” means the value specified by the manufacturer as the loaded weight of a single vehicle.

“Passenger-carrying volume” means the sum of the front seat volume and, if any, rear seat volume, as defined in 40 CFR 600.315, in the case of automobiles to which that term applies. With respect to automobiles to which that term does not apply, “passenger-carrying volume” means the sum in cubic feet, rounded to the nearest 0.1 cubic feet, of the volume of a vehicle’s front seat and seats to the rear of the front seat, as applicable, calculated as follows with the head room, shoulder room, and leg room dimensions determined in accordance with the procedures

outlined in Society of Automotive Engineers Recommended Practice J1100a, Motor Vehicle Dimensions (Report of Human Factors Engineering Committee, Society of Automotive Engineers, approved September 1973 and last revised September 1975.)

(a) For front seat volume, divide 1.728 into the product of the following SAE dimensions, measured in inches to the nearest 0.1 inches, and round the quotient to the nearest 0.001 cubic feet.

(1) H61—Effective head room—front.

(2) W3—Shoulder room—front.

(3) L34—Maximum effective leg room—accelerator.

(b) For the volume of seats to the rear of the front seat, divide 1.728 into the product of the following SAE dimensions, measured in inches to the nearest 0.1 inches, and round the quotient to the nearest 0.001 cubic feet.

(1) H63—Effective head room—second.

(2) W4—Shoulder room—second.

(3) L51—Minimum effective leg room—second.

“Running clearance” means the distance from the surface on which an automobile is standing to the lowest point on the automobile, excluding unsprung weight.

“Static loaded radius arc” means a portion of a circle whose center is the center of a standard tire-rim combination of an automobile and whose radius is the distance from that center to the level surface on which the automobile is standing, measured with the automobile at curb weight, the wheel parallel to the vehicle’s longitudinal centerline, and the tire inflated to the manufacturer’s recommended pressure.

“Temporary living quarters” means a space in the interior of an automobile in which people may temporarily live and which includes sleeping surfaces, such as beds, and household conveniences, such as a sink, stove, refrigerator, or toilet.

### § 523.3 Automobile.

(a) An automobile is any 4-wheeled vehicle propelled by fuel which is manufactured primar-

ily for use on public streets, roads, and highways (except any vehicle operated exclusively on a rail or rails), and that either—

(1) Is rated at 6,000 pounds gross vehicle weight or less; or

(2) Which—

(i) Is rated more than 6,000 pounds gross vehicle weight, but less than 10,000 pounds gross vehicle weight.

(ii) Is a type of vehicle for which the Administrator determines, under paragraph (b) of this section, average fuel economy standards are feasible, and

(iii) (A) Is a type of vehicle for which the Administrator determines, under paragraph (b) of this section, average fuel economy standards will result in significant energy conservation, or

(B) Is a type of vehicle which the Administrator determines, under paragraph (b) of this section, is substantially used for the same purposes as vehicles described in paragraph (a) (1) of this section.

(b) The following vehicles rated at more than 6,000 pounds and less than 10,000 pounds gross vehicle weight are determined to be automobiles:

(1) Vehicles which would satisfy the criteria in § 523.4 (relating to passenger automobiles) but for their gross vehicle weight rating.

(2) Vehicles which would satisfy the criteria in § 523.5 (relating to light trucks) but for their gross vehicle weight rating, and which

(i) Have a basic vehicle frontal area of 45 square feet or less.

(ii) Have a curb weight of 6,000 pounds or less.

(iii) Have a gross vehicle weight rating of 8,500 pounds or less, and

(iv) Are manufactured during the 1980 model year or thereafter.

### § 523.4 Passenger automobile.

A passenger automobile is any automobile (other than an automobile capable of off-highway operation) manufactured primarily for use in the transportation of not more than 10 individuals.



### § 523.5 Light truck.

(a) A light truck is an automobile other than a passenger automobile which is either designed for off-highway operation, as described in paragraph (b) of this section, or designed to perform at least one of the following functions:

- (1) Transport more than 10 persons;
- (2) Provide temporary living quarters;
- (3) Transport property on an open bed;
- (4) Provide greater cargo-carrying than passenger-carrying volume; or
- (5) Permit expanded use of the automobile for cargo-carrying purposes or other nonpassenger-carrying purposes through removal of seats by means installed for that purpose by the automobile's manufacturer or with simple tools, such as screwdrivers and wrenches, so as to create a flat, floor level surface extending from the forward-most point of installation of those seats to the rear of the automobile's interior.

(b) An automobile capable of off-highway operation is an automobile—

- (1) (i) That has 4-wheel drive; or
- (ii) Is rated at more than 6,000 pounds gross vehicle weight; and
- (2) That has at least four of the following characteristics (see Figure 1) calculated when the automobile is at curb weight, on a level surface, with the front wheels parallel to the automobile's longitudinal centerline, and the tires inflated to the manufacturer's recommended pressure—
  - (i) Approach angle of not less than 28 degrees.
  - (ii) Breakover angle of not less than 14 degrees.
  - (iii) Departure angle of not less than 20 degrees.
  - (iv) Running clearance of not less than 8 inches.
  - (v) Front and rear axle clearances of not less than 7 inches each.

42 F.R. 38362  
July 28, 1977

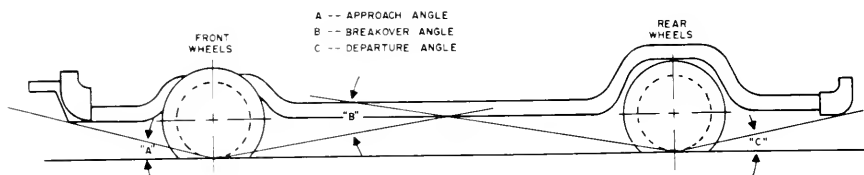


Fig. 1



**PREAMBLE TO PART 525—EXEMPTIONS FROM AVERAGE FUEL ECONOMY STANDARDS****(Docket No. FE 76-04; Notice 2)**

This notice establishes the format and content requirements for petitions which may be filed by low volume manufacturers of passenger automobiles requesting exemption from average fuel economy standards pursuant to section 502(c) of the Motor Vehicle Information and Cost Savings Act, as amended. The notice also establishes the timing requirements for the filing of such petitions, and describes the procedures that the agency will follow in acting on petitions.

Effective Date: July 28, 1977.

**For Further Information, Contact:**

Douglas F. Pritchard  
Office of Automotive Fuel Economy  
National Highway Traffic Safety  
Administration  
Department of Transportation  
Washington, D.C. 20590  
(202) 755-9384

**Supplementary Information:**

Section 502(c) of the Motor Vehicle Information and Cost Savings Act, as amended (the Act), provides that a low volume manufacturer of passenger automobiles may be exempted from the average fuel economy standards for passenger automobiles established by or under Section 502(a) if those standards are more stringent than the maximum feasible average fuel economy for the low volume manufacturer, and if the Administrator of the National Highway Traffic Safety Administration (NHTSA) establishes an alternative standard for the low volume manufacturer. A low volume manufacturer under the Act is one who manufactures less than 10,000 passenger automobiles in the model year for which the exemption is sought (the affected model year), and who produced less than 10,000 passenger automobiles in the second model year

preceding the affected model year. This final rule adds a new Part 525 to NHTSA regulations, and establishes the timing, content, and format requirements of petitions for exemption, and sets forth the procedure that the agency will follow in acting on petitions.

This final rule was preceded by a notice of proposed rulemaking (NPRM), 41 FR 53827, December 9, 1976. The proposed rule provided that petitions for exemptions for model year 1980 and subsequent model years must be submitted to the agency not later than 24 months before the beginning of the affected model year. Petitions for exemption for model year 1978 must be submitted not less than three months before the beginning of that model year, and petitions for model year 1979 must be submitted not later than 12 months before the beginning of that model year. The petition would have to include information showing that the petitioner was a low volume manufacturer, and data, views, and arguments that show that the petitioner's maximum feasible average fuel economy for the affected model year is less than the level of the otherwise applicable fuel economy standard. The proposed rule sets out specific items of information relating to the petitioner's claimed maximum feasible average fuel economy which all petitions must include.

The NPRM further proposed that the NHTSA would publish in the Federal Register notice of receipt of a petition for an exemption, and would place the nonconfidential portions of the petitions in the public docket. After considering the petition and other information available to it, the NHTSA would publish a notice of proposed rulemaking announcing its proposed decision on the petition, and soliciting comments on the proposed decision. After opportunity for comment, and a consideration of any comments that might

be received, the NHTSA would publish its final decision on the petition. The decision would either grant the exemption and establish an alternative average fuel economy standard that the petitioner would have to meet, or would deny the petition. The reasons for the decision would also be set forth.

Three comments to the NPRM were received by the agency. Two of the commenters were low volume manufacturers of passenger automobiles, Checker Motors Corporation and Avanti Motor Corporation. The third commenter was Miss Suzanna Goodyear, who did not indicate an affiliation with any particular interest, and who presumably commented as an interested member of the public. In addition, the agency obtained information from Checker and Avanti in a series of telephone conversations supplementing their written comments. All written comments, and written memoranda of all telephone conversations, were placed in the public docket. These comments and memoranda were carefully considered by the agency in the development of the final rule.

A number of issues were raised by the comments. These issues, and their resolution, along with specific changes to the proposed rule, are described in the following discussion.

*Issues raised by the comments and changes to the proposed rule.*

*Exemptions for nonessential automobiles.*

Miss Suzanna Goodyear commented that exemptions from fuel economy standards should be given only to vehicles that are "vital to our society, like fire engines." Miss Goodyear stated that she did not agree with exempting what she termed "specialty cars" and that she could see no reason to encourage motorized recreation. Strictly speaking, Miss Goodyear's comment relates to the decision on a petition for an exemption, rather than the procedural and format requirements governing such petitions. At this time, the agency does not believe that any manufacturer of passenger automobiles who qualifies as a low volume manufacturer under section 502(c) should be prohibited from petitioning for an exemption from an otherwise applicable fuel economy standard because of the intended use of the vehicles, or for any other reason. However, although any low volume manufacturer of

passenger automobiles may petition for an exemption regardless of the intended use of the vehicles manufactured, the nature of the vehicle may be relevant to the determination of the maximum feasible average fuel economy which the petitioner can achieve. Some aspects of vehicle design and performance may be deemed less critical than others compared to the need to conserve energy. Thus, in the process of establishing alternative standards for exempted manufacturers, the agency may determine that greater trade-offs can be made between those less critical aspects and improved fuel economy than can be made regarding the other aspects of design and performance.

*Need for alternative standards.* Both Checker and Avanti questioned whether an alternative average fuel economy standard should be established for a low volume manufacturer who has received an exemption. Avanti suggested that manufacturers of less than 500 passenger automobiles per model year be completely exempted from compliance with fuel economy standards, while alternative standards be set for manufacturers producing between 500 and 10,000 passenger automobiles per model year. Section 502(c) clearly provides that exemptions can be granted only when alternative standards are established:

The Secretary [or his delegate, the Administrator of NHTSA] *may not issue exemptions* with respect to a model year *unless he establishes, by rule, alternative average fuel economy standards* for passenger automobiles manufactured by manufacturers which receive exemptions under this subsection. . . . Each such standard shall be set at a level which the [Administrator] determines is the maximum feasible average fuel economy level for the manufacturers to which the standard applies.

It is difficult to imagine statutory language that more clearly and completely prohibits the Administrator from granting exemptions from fuel economy standards when no alternative standard is set. Congress, by including section 502(c) in the Act, recognized that low volume manufacturers may have special problems in improving fuel economy that are not shared by the major industry manufacturers, and that these

special problems could justify special treatment for the low volume manufacturers. Nevertheless, the language of section 502(c) clearly shows that Congress expected low volume manufacturers to attain the maximum level of average fuel economy consistent with their capabilities. Because of this clear expression of Congressional intent on the issue of alternative standards, the comments of Checker and Avanti in this regard must be rejected. As a final word on this point, Avanti asserted as part of its claim for total exemption, that it was disadvantaged in its effort to meet an average fuel economy standard because it produces only one type of vehicle and is therefore unable to do any fuel economy averaging. The fact that Avanti cannot average a variety of passenger automobiles will be considered by the agency in determining Avanti's maximum feasible average fuel economy, should it petition for an exemption. Therefore, Avanti's narrow product line should not disadvantage it in any way.

*Need for product and marketing information.* Avanti suggested in its comment that any low volume manufacturer which uses an engine that has been tested by the manufacturer of the engine should be exempt from any fuel economy test requirements and should not be required to file a petition containing justification for an exemption from a fuel economy standard. Avanti suggested that a statement indicating the type of engine used in the vehicle and a reference to the testing of the engine by the engine manufacturer should be sufficient.

The automotive fuel economy program is concerned with the fuel economy of automobiles, not the fuel economy of engines alone. Although the engine of a passenger automobile has a substantial effect on its fuel economy, the engine is only one of many aspects of a passenger automobile that determine the fuel economy of that vehicle. Other aspects, such as transmissions, axle ratios, and vehicle weight, also have a substantial effect on the fuel economy of a passenger automobile. To consider only the engine, as Avanti suggests, would be to ignore many important passenger automobile attributes which relate to fuel economy, and would give an extremely inaccurate picture of the fuel economy of a particular passenger automobile. The agency

must have information about a variety of passenger automobile characteristics if it is to carry out its statutory task of determining maximum feasible average fuel economy. Moreover, the Environmental Protection Agency (EPA), which has issued regulations for the fuel economy testing of passenger automobiles, does not require the testing of engines, but vehicle configurations, which are a unique combination of basic engine, engine code, inertia weight, transmission configuration, and axle ratio. Thus, engine test results would not be sufficient for the agency to rely upon. Further, as a representative of Avanti stated in a telephone conversation with an employee of the agency, the suggestion relating to engine testing would have been more appropriately directed to the EPA.

Although Avanti's suggestion that referencing engine test results is a sufficient showing to support a petition for an exemption cannot be adopted, the agency notes that the regulation is not intended to require any low volume manufacturer to conduct fuel economy testing in support of a petition. It is permissible under section 525.7(e) of the proposed and final regulation for a low volume manufacturer to submit test results of passenger automobiles with similar configurations to the passenger automobiles for which an exemption is being sought, and to extrapolate projected fuel economy values from those results. Thus, although more than engine tests will be required, the agency has endeavored to minimize the testing burden for the low volume manufacturer.

*Schedule for the submission of petitions.* Both Checker and Avanti objected to the proposed requirement that petitions for exemption for model years beyond 1980 be submitted not later than 24 months in advance of the affected model year. The objections of Checker and Avanti had the same basis. Both manufacturers purchase engines from General Motors instead of building the engines themselves. General Motors does not supply Checker or Avanti with engine data relating to fuel economy performance until shortly before the time those manufacturers begin production for a model year. Therefore, both Avanti and Checker claim that they would be unable to petition for an exemption two years in advance of the affected model year because they

would have insufficient data upon which to base a projection of average fuel economy.

The objection of Checker and Avanti to the two year requirement raises a difficult problem for the agency. The agency realizes that the low volume manufacturers which purchase engines for use in their vehicles must depend on their engine suppliers for much information relating to the engine, especially the effects of the engine on fuel economy. Moreover, since General Motors, the engine supplier for both Checker and Avanti, has been continually developing engines with improved fuel economy, it is likely that the fuel economy effects of any particular size engine will change over time. Therefore, even a low volume manufacturer that traditionally buys the same size engine and plans to continue doing so will not necessarily know what effect a future engine of that size will have on fuel economy. Also, the manufacturer of the engine may be reluctant to tell the low volume manufacturer what the likely fuel economy effects of a particular engine will be on the grounds that the information is unknown, or is a trade secret. Without data relating to the fuel economy of the engine, the low volume manufacturer will have difficulty projecting the future fuel economy of its automobiles.

Nevertheless, the agency wishes to avoid the situation in which it must accept the low volume manufacturers' planned fuel economy as the maximum feasible level of average fuel economy because there is insufficient leadtime to make fuel economy improvements that the petitioner could have made with more leadtime. Such situations are likely to arise if the agency waits until just before the beginning of the affected model year to reach a decision on a petition for exemption, as it must do if petitions are accepted up until shortly before the affected model year. Further, the agency wants to make its decision on a petition for exemption and alternative standard as early as possible so that the low volume manufacturer will have a firm fuel economy target, and enough leadtime to make whatever product or marketing changes which may be necessary to meet the alternative standard, if the exemption is granted, or the general standard if the exemption is not granted.

The agency has decided to retain the two year requirement. Retention of this requirement is more consistent with the basic energy conservation purposes of the Act since it permits the setting of standards that will require greater fuel economy improvements by the exempted manufacturers. The agency believes also that it is essential that the low volume manufacturers know the fuel economy standard which they will have to meet well in advance of the beginning of the affected model year so that they may make any necessary changes in their product plans with a maximum of efficiency and a minimum of expense and disruption. Allowing petitions for exemption to be filed six or seven months before the beginning of the affected model year would barely leave the agency time to reach a decision before the manufacturer must begin production, and would leave the manufacturer little time to make any changes that may be necessary in light of the decision on the petition.

Moreover, the agency believes that the lack of engine data problem raised by Checker and Avanti is not insurmountable. Although Checker and Avanti have been unable to get the most current engine performance data, neither company has experienced significant difficulty in obtaining an engine which they desired. Thus, the low volume manufacturers know to a high degree of certainty what engines will be available for their use. With this knowledge, the low volume manufacturers should be able to make reasonable projections of the range of fuel economy which they can expect to achieve. For example, if a low volume manufacturer uses a 350 cubic inch displacement engine in the year of application (two years before the beginning of the affected model year) and knows that it will be able to use a 350 cubic inch engine in the affected model year, the low volume manufacturer can assume no improvement in fuel economy from the engine, and can project fuel economy for the affected model year from other aspects of the vehicle, such as weight reduction or lowering the axle ratio. The low volume manufacturer can also project fuel economy improvement from using a smaller engine in the affected model year, such as a 305 cubic inch engine.

In addition, the agency believes that the low volume manufacturer may be able to project increases in fuel economy associated with particular improvements in an engine. Both Avanti and Checker indicated to the agency that General Motors has always been extremely helpful to them in their product planning to allow them to accommodate the General Motors engines. As the fuel economy performance of the engines becomes a more significant aspect of the product planning of the low volume manufacturers, they may find that General Motors will be willing to assist them by supplying advance engine information relating to fuel economy. In addition, the agency, through reporting requirements applicable to General Motors, or other engine suppliers, or through subpoena, could obtain information about the fuel economy effects of a particular engine. The agency would use this information to evaluate the maximum feasible average fuel economy of the low volume manufacturer. In light of these considerations, the agency has determined that the public interest in energy conservation, as well as the interest of the low volume manufacturers, will be best served by requiring petitions for exemption for model years beyond 1980 to be filed not later than two years before the beginning of the affected model year.

Notwithstanding the foregoing, the agency has determined to provide for situations where new information obtained within two years of the beginning of the affected model year can be brought to the agency's attention, and possibly modify the decision on a petition for an exemption. Therefore, section 525.11 of the final rule allows a low volume manufacturer which has had a petition denied to reapply, anytime before the beginning of the affected model year, on the basis of information that was unavailable despite due diligence, at the time of the original application. This change is intended to ensure that no low volume manufacturer is deprived of an opportunity to make a complete showing of his maximum feasible average fuel economy by the requirement that petitions for exemptions for model year beyond 1979 be filed not later than two years before the beginning of the affected model year.

With respect to petitions for exemption for model year 1978, the agency has decided to delete the requirement that petitions be submitted not later than three months before the beginning of that model year. Under the final rule, petitions may be submitted at any time before the beginning of the model year. This change was made since less than three months remain before model year 1978. The two low volume manufacturers that have thus far indicated an interest in petitioning for an exemption have previously been advised that if they wish to submit petitions, they could do so by following the format and content requirements of the proposed rule.

The agency has made the following technical and clarifying changes to the rule.

The phrase "content and format requirements for petitions for exemptions" is substituted for the term "guidelines" in section 525.2, to make clear that the requirements of Part 525 are mandatory and not merely advisory.

A new paragraph (b) is added to section 525.7, requiring petitioners to state whether the petitioner controls, is controlled by, or is under common control with another manufacturer of passenger automobiles, and if so, to indicate the number of passenger automobiles manufactured by such other manufacturer in the second model year immediately preceding the affected model year. The agency interprets the term "control" to include any stock ownership, credit relationship or contractual arrangement which enables one person, as a practical matter, to influence the decisions of another person. Paragraphs (b) through (g) are redesignated (c) through (h).

In addition, the paragraph that was 525.7(c) in the NPRM is amended by substituting "40 CFR 600.506(a)(2)" for "40 CFR (a)(2)". This amendment corrects a typographical error which appeared in the NPRM and is not a substantive change.

The subparagraph that appeared as 525.7(d)(5) in the NPRM is amended to read "fuel metering system, including the number of carburetor barrels, if applicable". This change is not substantive, but is made to make the subparagraph consistent with terminology in EPA regulations in 40 CFR Part 600.

The subparagraph that appeared in the NPRM as 525.7(g)(5) would have required petitioners which are not considering means or strategies to comply with applicable average fuel economy standards for the affected model year to explain their reasons for not doing so. This subparagraph is amended to make it clear that the explanations are to be comprehensive. As amended, the subparagraph requires that the explanation include discussion of weight reduction, straight-line acceleration reduction, other technological changes or improvements, and shifts in production mix. This amendment will ensure that the agency receives economic and technological justification for all major aspects of potential fuel economy improvement.

All references to "Part 522" are deleted. At the time of the NPRM, the agency intended to issue a procedural regulation, Part 522, that would specify the informal rulemaking procedures used by the agency in the fuel economy area. The agency has since decided to continue to use the procedures in 47 CFR 551-553.

In light of the foregoing, Title 49, Code of Federal Regulations, is amended by adding a new Part 525, *Exemptions From Average Fuel Economy Standards*. Because these rules are procedural in nature, the agency has determined that they shall become effective on the date of publication in the Federal Register.

The program official and lawyer principally responsible for the development of this regulation are Douglas Pritchard and David Zisser, respectively.

Issued on July 21, 1977.

Joan Claybrook  
National Highway Traffic Safety  
Administrator

**42 F.R. 38374**  
**July 28, 1977**



## **PREAMBLE TO AMENDMENTS TO PART 525—EXEMPTIONS FROM AVERAGE FUEL ECONOMY STANDARDS**

**(Docket No. FE 76-04; Notice 4)**

*Action:* Final rule.

*Summary:* This rule makes several amendments to the requirements governing the contents of petitions by manufacturers of fewer than 10,000 passenger automobiles annually for exemptions from the generally applicable fuel economy standards and in the procedures followed by the National Highway Traffic Safety Administration (NHTSA) in processing those petitions. These amendments will require that petitions for exemption contain more information concerning the fuel economy testing of the vehicles, but otherwise simplify the general content requirements for these petitions. In addition, the notice of receipt of the petitions and the proposed decision on the petitions will now be combined into one notice. These changes will simplify and expedite the preparation and processing of these petitions.

*Effective date:* This rule is effective with respect to petitions for exemption for 1980 and subsequent model years.

*For further information contact:*

William Devereaux, Office of Automotive Fuel Economy Standards, National Highway Traffic Safety Administration, Washington, D.C. 20590 (202-755-9384).

*Supplementary information:*

Section 502(c) of the Motor Vehicle Information and Cost Savings Act, as amended (the Act), provides that a low volume manufacturer of passenger automobiles may be exempted from the generally applicable average fuel economy standards for passenger automobiles if those standards are more stringent than the maximum feasible average fuel economy for that manufacturer and if the NHTSA establishes an alternative standard for the manufacturer at its maximum feasible level. Under the Act, a low volume manufacturer is one who

manufactures fewer than 10,000 passenger automobiles in the model year for which the exemption is sought (the affected model year) and who manufactures fewer than 10,000 passenger automobiles in the second model year preceding the affected model year.

To implement section 502(c), NHTSA issued Part 525, Exemptions From Average Fuel Economy Standards. Part 525 prescribes the content of exemption petitions and sets forth the agency procedures for processing those petitions. In connection with the processing of petitions submitted by low manufacturers, several problems with the process for handling exemption petitions became apparent. The most obvious problems were the amount of time needed to obtain a complete petition from the petitioners and the amount of time needed to publish a final decision on the petitions. To reduce these problems, NHTSA published a notice of proposed rulemaking to amend Part 525 at 44 FR 21051; April 9, 1979.

Two comments were submitted in response to this proposal. One comment addressed the issue of the fuel economy improvements to be expected from improved lubricants, but did not address any of the issues raised in the notice. Accordingly, that comment will not be discussed further in this notice.

The other comment was submitted by Aston Martin Lagonda, a low volume manufacturer. Aston Martin suggested that the rule be amended so that low volume manufacturers not be required to submit petitions two years before the affected model year. This suggestion has not been adopted. For the same reasons set forth in the final rule originally establishing Part 525 (42 FR 38374; July 28, 1977), NHTSA believes that retention of the two year requirement is more consistent with the energy conservation purposes of the Act. Early

submission allows NHTSA to set standards at levels that require maximum fuel economy improvements by the exempted manufacturers. The agency also believes that it is essential that low volume manufacturers know the fuel economy which they will have to meet as far in advance of the affected model year as possible, so that the manufacturers can make any necessary changes in their product plans with a maximum of efficiency and a minimum of expense and disruption.

Aston Martin went on to argue that it should not be expected to make any significant alterations to its vehicles. This does not relate to the issues raised in the proposal, but on how NHTSA should determine a manufacturer's maximum feasible average fuel economy. As such, the comment is not relevant to the issues raised in the notice.

Neither of these commenters responded to NHTSA's request for comments as to means of avoiding an annual submission and processing of petitions for exemption, and the request for com-

ments on extending the duration of the exemption from the current three year maximum to a longer period. Since no commenter has raised any objection to the proposed amendments, they are being adopted without change.

The agency has reviewed the impacts of this rule and determined that they are minimal, and that the rule is not a significant regulation with the meaning of Executive Order 12044.

The program official and attorney principally responsible for the development of this proposed regulation are William Devereaux and Stephen Kratzke, respectively.

In consideration of the foregoing, 49 CFR Part 525 is amended. . . .

Issued on September 19, 1979.

Joan Claybrook  
Administrator

**44 F.R. 55578**  
**September 27, 1979**

## PREAMBLE TO AN AMENDMENT TO PART 525—EXEMPTIONS FROM AVERAGE FUEL ECONOMY STANDARDS

(Docket Nos. FE 76-04; Notice 5;  
FE 77-03, Notice 4; 80-21, Notice 1)

**ACTION:** Final Rule.

**SUMMARY:** This notice makes conforming amendments to several of the agency's regulations deleting specific requirements for confidentiality determinations. These conforming amendments are needed as a result of the publication today of a new agency regulation governing requests for confidentiality determinations (Part 512). Since that new regulation supercedes the confidentiality provisions existing in several of the agency's other regulations, these conforming amendments are being made without notice and opportunity for comment.

**EFFECTIVE DATE:** These amendments are effective April 9, 1981.

**FOR FURTHER INFORMATION CONTACT:**

Roger Tilton, Office of Chief Counsel,  
National Highway Traffic Safety Administration,  
400 Seventh Street, S.W.,  
Washington, D.C. 20590 (202-426-9511).

**SUPPLEMENTARY INFORMATION:** In accordance with the above, Title 49 of the Code of Federal Regulations is amended as follows.

Part 525, *Exemptions From Average Fuel Economy Standards*, is revised as follows:

(1) Section 525.6(g) (1) and (2) are deleted and replaced with the following:

(g) Specify and segregate any part of the information and data submitted under this part that the petitioner wishes to have withheld from public disclosure in accordance with Part 512 of this Chapter.

(2) Section 525.13 is deleted and section 525.12 is revised to read:

**§ 525.12 Public inspection of information.**

(a) Except as provided in paragraph (b), any person may inspect available information relevant to a petition under this Part, including the petition and any supporting data, memoranda of informal meetings with the petitioner or any other interested persons, and the notices regarding the petition, in the Docket Section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this paragraph in accordance with Part 7 of the regulations of the Office of the Secretary of Transportation (49 CFR Part 7).

(b) Except for the release of confidential information authorized by section 505 of the Act and Part 512 of this Chapter, information made available for public inspection does not include information for which confidentiality is requested under § 525.6(g) and is granted in accordance with Part 512 and sections 502 and 505 of the Act and section 552(b) of Title 5 of the United States Code.

Part 537, *Automotive Fuel Economy Reports*, is revised as follows:

(1) Section 537.5(c) (7) (i) and (ii) are deleted and replaced with the following:

(7) Specify any part of the information or data in the report that the manufacturer believes should be withheld from public disclosure as trade secret or other confidential business information in accordance with Part 512 of this Chapter.

(2) Section 537.12 is deleted and section 537.11 is revised to read:

**§ 537.11 Public inspection of information.**

(a) Except as provided in paragraph (b), any person may inspect the information and data submit-

ted by a manufacturer under this part in the docket section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this section in accordance with the regulations of the Secretary of Transportation in Part 7 of this title.

(b) Except for the release of confidential information authorized by section 505 of the Act and Part 512 of this Chapter, information made available under paragraph (a) for public inspection does not include information for which confidentiality is requested under § 537.5(c)(7) and is granted in accordance with Part 512 of this Chapter, section 505 of the Act, and section 552(b) of Title 5 of the United States Code.

Part 555, *Temporary Exemption From Motor Vehicle Safety Standards*, is revised as follows:

(1) Section 555.5(b) (6) is revised to read:

(6) Specify any part of the information and data submitted which petitioner requests be

withheld from public disclosure in accordance with Part 512 of this Chapter.

(2) Section 555.10(b) is revised to read:

(b) Except for the release of confidential information authorized by Part 512 of this Chapter, information made available for inspection under paragraph (a) shall not include materials not relevant to the petition for which confidentiality is requested and granted in accordance with sections 112, 113, and 158 of the Act (15 U.S.C. 1401, 1402, and 1418) and section 552(b) of Title 5 of the United States Code.

Issued on December 30, 1980.

Joan Claybrook  
Administrator

**46 F.R. 2063**  
**January 8, 1981**

## PART 525—EXEMPTIONS FROM AVERAGE FUEL ECONOMY STANDARDS

### Sec.

525.1 Scope.

525.2 Purpose.

525.3 Applicability.

525.4 Definitions.

525.6 Requirements for petition.

525.7 Basis for petition.

525.8 Processing of petitions.

525.9 Duration of exemption.

525.10 Renewal of exemption.

525.11 Termination of exemption; amendment of alternative average fuel economy standard.

525.12 Public inspection of information.

525.13 Confidential information.

### § 525.1 Scope.

This part establishes procedures under section 502(c) of the Motor Vehicle Information and Cost Savings Act, as amended (15 U.S.C. 2002), for the submission and disposition of petitions filed by low volume manufacturers of passenger automobiles to exempt them from the average fuel economy standards for passenger automobiles and to establish alternative average fuel economy standards for those manufacturers.

### § 525.2 Purpose.

The purpose of this Part is to provide content and format requirements for low volume manufacturers of passenger automobiles which desire to petition the Administrator for exemption from applicable average fuel economy standards and for establishment of appropriate alternative average fuel economy standards and to give interested persons an opportunity to present data, views and arguments on those petitions.

### § 525.3 Applicability.

This part applies to passenger automobile manufacturers.

### § 525.4 Definitions.

(a) Statutory terms.

(1) The terms “fuel,” “manufacture,” “manufacturer,” and “model year” are used as defined in section 501 of the Act.

(2) The terms “average fuel economy,” “fuel economy,” and “model type” are used as defined in 40 CFR 600.002–77.

(3) The term “automobile” means a vehicle determined by the Administrator under 49 CFR 523 to be an automobile.

(4) The term “passenger automobile” means an automobile determined by the Administrator under 49 CFR 523 to be a passenger automobile.

(5) The term “customs territory of the United States” is used as defined in 19 U.S.C. 1202.

(b) Other terms.

(1) The terms “base level” and “vehicle configuration” are used as defined in 40 CFR 600.002–77.

(2) The term “vehicle curb weight” is used as defined in 40 CFR 85.002.

(3) The term “interior volume index” is used as defined in 40 CFR 600.315–77.

(4) The term “frontal area” is used as defined in 40 CFR § 86.129–79.

(5) The term “basic engine” is used as defined in 40 CFR § 600.002–77(a)(21).

(6) The term “designated seating position” is defined in 49 CFR § 571.3.

(7) As used in this Part, unless otherwise required by the context—

“Act” means the Motor Vehicle Information and Cost Savings Act (Pub. L. 92–513), as amended by the Energy Policy and Conservation Act (Pub. L. 94–163);

“Administrator” means the Administrator of the National Highway Traffic Safety Administration;

"Affected model year" means a model year for which an exemption and alternative average fuel economy standard are requested under this Part;

"Production mix" means the number of passenger automobiles, and their percentage of the petitioner's annual total production of passenger automobiles, in each vehicle configuration which a petitioner plans to manufacture in a model year; and

"Total drive ratio" means the ratio of an automobile's engine rotational speed (in revolutions per minute) to the automobile's forward speed (in miles per hour).

#### **§ 525.5 Limitation on eligibility.**

Any manufacturer that manufactures (whether or not in the customs territory of the United States) 10,000 or more passenger automobiles in the second model year preceding an affected model year or in the affected model year, is ineligible for an exemption for that affected model year.

#### **§ 525.6 Requirements for petition.**

Each petition filed under this part must—

(a) Identify the model year or years for which exemption is requested;

(b) Be submitted not later than 24 months before the beginning of the affected model year, unless good cause for later submission is shown;

(c) Be submitted in three copies to: Administrator, National Highway Traffic Safety Administration, Washington, D.C. 20590;

(d) Be written in the English language;

(e) State the full name, address, and title of the official responsible for preparing the petition, and the name and address of the manufacturer;

(f) Set forth in full data, views and arguments of the petitioner supporting the exemption and alternative average fuel economy standard requested by the petitioner, including the information and data specified by § 525.7 and the calculations and analyses used to develop that information and data. No documents may be incorporated by reference in a petition unless the documents are submitted with the petition;

(g) [Specify and segregate any part of the information and data submitted under this part that the petitioner wishes to have withheld from public disclosure in accordance with Part 512 of this Chapter. (46 FR 2063—January 8, 1981. Effective: April 9, 1981)]

#### **§ 525.7 Basis for petition.**

(a) The petitioner shall include the information specified in paragraphs (b) through (h) in its petition.

(b) Whether the petitioner controls, is controlled by, or is under common control with another manufacturer of passenger automobiles, and, if so, the nature of that control relationship, and the total number of passenger automobiles manufactured by such other manufacturer or manufacturers.

(c) The total number of passenger automobiles manufactured or likely to be manufactured (whether or not in the customs territory of the United States) by the petitioner in the second model year immediately preceding each affected model year.

(d) For each affected model year, the petitioner's projections of the most fuel efficient production mix of vehicle configurations and base levels of its passenger automobiles which the petitioner could sell in that model year, and a discussion demonstrating that these projections are reasonable. The discussion shall include information showing that the projections are consistent with—

(1) The petitioner's annual total production and production mix of passenger automobiles manufactured or likely to be manufactured in each of the four model years immediately preceding that affected model year;

(2) Its passenger automobile production capacity for that affected model year;

(3) Its efforts to comply with that average fuel economy standard; and

(4) Anticipated consumer demand in the United States for passenger automobiles during that affected model year.

(e) For each affected model year, a description of the following features of each vehicle configuration of the petitioner's passenger automobiles to be manufactured in that affected model year:

(1) Frontal area;

(2) Vehicle curb weight;

(3) Number of designated seating positions and interior volume index;

(4) Basic engine, displacement, and SAE net horsepower;

(5) Fuel metering system, including the number of carburetor barrels, if applicable;

(6) Drive train configuration and total drive ratio; and

(7) Emission control system;

(8) Dynamometer road load setting, determined in accordance with 40 CFR Part 86, and the method used to determine that setting, including information indicating whether the road load setting was adjusted to account for the presence of air conditioning and whether the setting was based on the use of radial ply tires; and

(9) Use of synthetic lubricants, low viscosity lubricants, or lubricants with additives that affect friction characteristics in the crankcase, differential, and transmission of the vehicles tested under the requirements of 40 CFR Parts 86 and 600. With respect to automobiles which will use these lubricants, indicate which one will be used and explain why that type was chosen. With respect to automobiles which will not use these lubricants, explain the reasons for not so doing.

(f) For each affected model year, a fuel economy value for each vehicle configuration specified in 40 CFR 600.506 (a)(2), base level, and model type of the petitioner's passenger automobiles to be manufactured in that affected model year calculated in accordance with Subpart C of 40 CFR Part 600 and based on tests or analyses comparable to those prescribed or permitted under 40 CFR Part 600 and a description of the test procedures or analytical methods.

(g) For each affected model year, an average fuel economy figure for the petitioner's passenger automobiles to be manufactured in that affected model year calculated in accordance with 40 CFR 600.510(e) and based upon the fuel economy values provided under paragraph (f) of this section and upon the petitioner's production mix projected under paragraph (d) of this section for the affected model year.

(h) Information demonstrating that the average fuel economy figure provided for each affected model year under paragraph (g) of this section is the maximum feasible average fuel economy achievable by the petitioner for that model year, including—

(1) For each affected model year and each of the two model years immediately following the first affected model year, a description of the technological means selected by the petitioner for improving the average fuel economy of its automobiles to be manufactured in that model year.

(2) A chronological description of the petitioner's past and planned efforts to implement the

means described under paragraph (h)(1) of this section.

(3) A description of the effect of other Federal motor vehicle standards on the fuel economy of the petitioner's automobiles.

(4) For each affected model year, a discussion of the alternative and additional means considered but not selected by the petitioner that would have enabled its passenger automobiles to achieve a higher average fuel economy than is achievable with the means described under paragraph (h)(1) of this section. This discussion must include an explanation of the reasons the petitioner had for rejecting these additional and alternative means.

(5) In the case of a petitioner which plans to increase the average fuel economy of its passenger automobiles to be manufactured in either of the two model years immediately following the first affected model year, an explanation of the petitioner's reasons for not making those increases in that affected model year.

#### **§ 525.8 Processing of petitions.**

(a) If a petition is found not to contain the information required by this Part, the petitioner is informed about the areas of insufficiency and advised that the petition will not receive further consideration until the required information is submitted.

(b) The Administrator may request the petitioner to provide information in addition to that required by this Part.

(c) The Administrator publishes a proposed decision in the *Federal Register*. The proposed decision indicates the proposed grant of the petition and establishment of an alternative average fuel economy standard, or the proposed denial of the petition, specifies the reasons for the proposal and invites written public comment on the proposal.

(d) Any interested person may, upon written request to the Administrator not later than 15 days after the publication of a notice under paragraph (c) of this section, meet informally with an appropriate official of the National Highway Traffic Safety Administration to discuss the petition or notice.

(e) After the conclusion of the period for public comment on the proposal, the Administrator publishes a final decision in the *Federal Register*. The final decision is based on the petition, written public comments, and other available information.

The final decision sets forth the grant of the exemption and establishes an alternative average fuel economy standard or the denial of the petition, and the reasons for the decision.

**§ 525.9 Duration of exemption.**

An exemption may be granted under this Part for not more than three model years.

**§ 525.10 Renewal of exemption.**

A manufacturer exempted under this Part may request renewal of its exemption by submitting a petition meeting the requirements of §§ 525.6 and 525.7.

**§ 525.11 Termination of exemption; amendment of alternative average fuel economy standard.**

(a) Any exemption granted under this Part for an affected model year does not apply to a manufacturer that is ineligible under § 525.5 for an exemption in that model year.

(b) The Administrator may initiate rulemaking either on his own motion or on petition by an interested person to terminate an exemption granted under this Part or to amend an alternative average fuel economy standard established under this Part.

(c) Any interested persons may petition the Administration to terminate an exemption granted under this Part or to amend an alternative average fuel economy standard established under this Part.

**§ 525.12 Public inspection of information.**

[(a) Except as provided in paragraph (b), any person may inspect available information relevant to a petition under this Part, including the petition and any supporting data, memoranda of informal meetings with the petitioner or any other interested persons, and the notices regarding the petition, in the Docket Section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this paragraph in accordance with Part 7 of the regulations of the Office of the Secretary of Transportation (49 CFR Part 7).

(b) Except for the release of confidential information authorized by section 505 of the Act and Part 512 of this Chapter, information made available for public information does not include information for which confidentiality is requested under § 525.6(g) and is granted in accordance with Part 512 and sections 502 and 505 of the Act and section 552(b) of Title 5 of the United States Code. (46 FR 2063—January 9, 1981. Effective: April 9, 1981)]

**§ 525.13 [Deleted]**

**42 F.R. 38374  
July 28, 1977**



# **PREAMBLE TO PART 527—REDUCTION OF PASSENGER AUTOMOBILE AVERAGE FUEL ECONOMY STANDARDS**

**(Docket No. FE 76-2; Notice 2)**

**ACTION:** Final rule.

**SUMMARY:** This regulation prescribes requirements for the contents and processing of petitions by passenger automobile manufacturers to reduce the average fuel economy standards applicable to passenger automobiles produced in model years 1978, 1979, and 1980 to compensate for any adverse fuel economy impact of more stringent Federal motor vehicle emission, safety, noise, or damageability standards in those years. Such requirements and reductions are authorized by the Motor Vehicle Information and Cost Savings Act. This regulation is intended to provide notice to passenger automobile manufacturers of the procedures to be followed in processing those petitions.

**EFFECTIVE DATE:** November 14, 1977.

## **FOR FURTHER INFORMATION CONTACT:**

Mr. Theodore Bayler,  
Office of Automotive Fuel Economy, (NFE-01),  
National Highway Traffic Safety  
Administration, 400 Seventh Street, S.W.,  
Washington, D.C. 20590, 202-755-9384.

## **SUPPLEMENTARY INFORMATION:**

### **I. Background Information**

Title V of the Motor Vehicle Information and Cost Savings Act, as amended (hereafter, "the Act"), establishes average fuel economy standards applicable to manufacturers of passenger automobiles. The term "passenger automobiles" generally includes four-wheeled vehicles manufactured primarily for on-road use and for the transportation of ten or fewer passengers, e.g., sedans and station wagons. See 15 U.S.C. 2001(1) and (2) and 41 F.R. 55368. Compliance of a manufacturer with these standards is to be determined by averaging the fuel economy ratings of the various types of passenger automobiles manufactured by the manufacturer in a model year and comparing that number to the fuel economy standard. The Act specifies fuel economy

standards of 18, 19, 20, and 27.5 miles per gallon for model years 1978, 1979, 1980, and 1985, respectively. Fuel economy standards for model years 1981-84 have been established administratively at 22 mpg for 1981, 24 mpg for 1982, 26 mpg for 1983, and 27 mpg for 1984. Fuel economy values for the various types of passenger automobiles are determined in accordance with procedures established by the Environmental Protection Agency. See 40 CFR Part 600.

The fuel economy achievable by a particular passenger automobile may be adversely affected by the technology adopted by the manufacturer in order to comply with Federal motor vehicle emission, safety, noise, and damageability standards (hereafter called "nonfuel economy standards") requirements. The fuel economy standards for model years 1978-80 were established at levels which took into account the effects of the nonfuel economy standards in effect in 1975. However, in order to compensate for possible increases in the stringency of the nonfuel economy standards and for any corresponding fuel economy impacts, an additional provision was included in the Act. Under Section 502(d) of the Act, a manufacturer can petition for an adjustment of a fuel economy standard (called a "Federal standards fuel economy reduction") due to the impacts of these more stringent nonfuel economy standards. The Act gives the Department authority to publish regulations specifying the required content of these petitions; the regulations published herein are based upon this authority.

These regulations were published in proposed form on October 26, 1976. See 41 F.R. 46878. A comment period of 60 days was established. A docket was established for this rulemaking proceeding in the Department's headquarters offices in Washington, D.C. Four domestic automobile companies, two federal agencies, one manufacturer of gasoline additives, one newspaper publishing association, one "public interest" group, and three

private individuals submitted written comments on the proposal. All written comments, together with certain other related material such as an economic impact assessment were placed in the docket and made available for public inspection. Finally, copies of this notice were circulated to various Federal agencies for their comment and review. All of the various submissions, discussions referred to above, and other available information were considered in developing the final regulations promulgated herein.

Section 502(g) of the Act requires that petitions for reduction be processed according to standard informal rulemaking procedures, except for the mandatory additional opportunity for oral presentations. The Act also authorizes the consolidation of petitions by more than one automobile manufacturer, to permit the conduct of a single proceeding for all. See section 502(d) (4). As noted in the preamble to the October 26 notice, NHTSA intends to exercise this consolidation authority to the maximum extent possible, consistent with the other requirements of the Act and the commonality of issues raised by various petitioners. See 41 F.R. 46884. This will reduce the administrative burden of processing petitions and will facilitate participation in the proceeding by less affluent individuals and organizations, who might be unable to participate in a series of completely separate proceedings.

These regulations require a manufacturer applying for a reduction to submit information on two sets of passenger automobiles for the purpose of calculating a reduction. The first set is the actual set of passenger automobiles which the manufacturer plans to produce in the model year for which the reduction is requested (hereafter called the "affected model year"). The second set is the hypothetical set of passenger automobiles which the manufacturer would have produced had 1975-level standards in those nonfuel economy categories for which a reduction is sought (e.g., emissions and damageability) still been in effect. For each of these sets, information is requested on, among other things, the distribution of vehicles among the various vehicle categories expected to be produced (called the "production mix"), the fuel economy-related technology used in the vehicles, and any available technology not used but which would have reduced any loss of fuel economy and improved the resulting vehicle fuel economy. From

all this information, the average fuel economy of the two sets of vehicles can be calculated, and the difference between the two averages gives an indication of the fuel economy penalty associated with the nonfuel economy standards. The required information would also enable NHTSA to assure that the manufacturer has used all available means for complying with the nonfuel economy standards so as to minimize or avoid entirely any reduction of the fuel economy of its passenger automobiles. If a manufacturer sustains its burden of demonstrating that a reduction is warranted under the statute and the regulations, the fuel economy standard applicable to that manufacturer for the affected model year is reduced in accordance with Section 502(d) of the Act.

A more detailed description of this rule and related statutory requirements can be found in the Notice of Proposed Rulemaking published in 41 F.R. 46878 on October 26, 1976.

### **II. Principal Changes In the Rule**

As a result of the public comments and NHTSA's further analysis, several changes were made to the rule as proposed. Under the final rule, NHTSA will grant confidential treatment to any portion of a reduction petition only in the most exceptional circumstances. Based on comments expressly solicited in the NPRM, the procedure for calculating a reduction was revised to take into account the possible interaction of efforts to comply with more than one category of Federal standards. In addition, the format for submitting information on each of a petitioner's vehicle configurations was revised to make data submission less burdensome. The final rule revises the methodology for adjusting a petitioner's production mix when none of the petitioner's passenger automobiles has a fuel economy rating that equals or exceeds the fuel economy standard. Also, several revisions to the proposed procedures for holding hearings on petitions were adopted. Each of these changes, as well as requested changes that were not adopted, are discussed in greater detail below.

### **III. Comments Received and the Final Version of the Regulation**

#### **A. Required Contents of Petitions**

Several commenters raised questions with respect to the quantity of data and level of detail required in petitions. The NPRM suggested that the submission of particular items of data and in-

formation would not be required, but that the petitioner would be required to make various specified showings by whatever means it deemed best. If the means chosen by a manufacturer were inadequate, its petition would be denied. The Administrator retained the authority to require additional supporting information at any time prior to a final decision, however, and to suspend processing of the petition until such information was submitted.

Ford Motor Co., in its comment on the NPRM, argues that NHTSA should not refuse to consider a petition on the basis of inadequacy "unless the petition on its face fails to present any information with respect to each of the items required under the applicable regulations." This argument rests on Ford's reading of "*International Harvester v. Ruckelshaus*," 478 F.2d 615 (D.C. Cir. 1973). However, the portion of that opinion which Ford cites actually states that denial of a petition on the grounds of incompleteness is improper where the petitioner came forward "with all the data there was to be had, and the Administrator did not ask for more." 478 F.2d at 642. Therefore, NHTSA reasserts its right to request additional relevant information where such information either presently exists or can be generated and made available, and to refuse to further consider petitions which a petitioner fails to supplement as required. Failure to provide such information constitutes a failure to satisfy the burden of persuasion in the proceeding.

Most of the automobile manufacturers which responded to the NPRM cautioned NHTSA on the potentially burdensome impact of the data submission requirements, particularly with respect to the requirement for the submission of detailed information on the technology used in each vehicle configuration (as defined by EPA in 40 CFR 600.002-77) of the petitioner's passenger automobiles. It is NHTSA's intent to minimize the data submission burden on petitioners, consistent with our need for detailed information in order to calculate reductions. However, the EPA average fuel economy calculation procedure, which is also applicable to our reduction calculations, requires fuel economy values for most large-selling vehicle configurations. Each data point in the average fuel economy calculation may affect the reduction calculation and must therefore be reviewed by NHTSA in our analysis of petitions for reduction. To reduce this burden, the regulations permit the incorporation by reference of material contained elsewhere in the

petition. For example, a petitioner could first list all technology which is used throughout its entire product line, then list additional technology which is common to an individual car line but which differs from other car lines, and so on with similar listings for each model type within that car line, each base level, and finally each configuration. This approach should reduce the amount of duplication involved in presenting the required information.

Chrysler Corporation suggested two additional methods for reducing this burden. First, it suggests that petitioners should be permitted to submit copies of reports containing quarterly vehicle production data which are submitted to EPA pursuant to 40 CFR 86.077-36 and 86.078-37 in order to satisfy the need for information on its past production mix and totals. Second, it suggests that the requirement that petitions continually be updated as new information becomes available should be revised to permit periodic updates. Both suggestions have merit. To the extent that reports required to be submitted to EPA or to any other agency present the information required under this regulation in a straightforward manner, not requiring extensive culling of useful information from surrounding material irrelevant to a section 502(d) proceeding, copies of those reports may be submitted. The EPA reports cited by Chrysler may satisfy the product mix submission requirements. With respect to the question of updating petitions, Chrysler correctly points out that much of the required data, such as projected production mix and total, will be in a state of flux at the time the manufacturer submits its petition. The regulation has, therefore, been changed to require the submission of revised information within 30 days after the revision. This permits petitioners to submit new information either as it becomes available or to submit monthly updates including more than one change. Allowing more than 30 days for submission of updated information (Chrysler suggested 90 days) would prejudice NHTSA's ability to evaluate petitions quickly and accurately.

In contrast to the above comments, the Center for Auto Safety argues that the data required to be submitted under the proposed regulations is inadequate to evaluate petitions. That organization suggests requiring the submission of additional information similar to that required in EPA emission standard suspension proceedings, principally in-

volving the manufacturer's research and development program resources and its efforts to develop alternative technology. NHTSA has concluded that it would be inappropriate to routinely require the submission of all of this information as part of every petition for a reduction. However, to the extent that this type of information is relevant to a particular reduction proceeding, it is expected that it would normally be submitted to NHTSA as part of the manufacturer's petition for a reduction. Much of the suggested information seems more relevant to an evaluation of a manufacturer's maximum feasible fuel economy improvements in a standard-setting proceeding than to a reduction proceeding. Compliance with applicable fuel economy standards is not a prerequisite to qualifying for a reduction. Both manufacturers which greatly exceed and manufacturers which fail to meet the fuel economy standards may still qualify for a reduction if they can demonstrate that their fuel economy suffered as a result of their efforts to comply with nonfuel economy standards, notwithstanding the use of a "reasonably selected technology." For the purpose of submitting a petition, it is not even necessary for a manufacturer to actually have used reasonably selected technology in its vehicles, since a petition must be granted if a fuel economy penalty would have resulted had the petitioner used such a technology. See section 502(d) (2) (B) (ii) of the Act.

#### B. Reasonably Selected Technology

A difference of opinion in the comments arose with respect to the determination of whether a particular technology is "reasonably selected." Ford argues that this should be an individualized determination, with the reasonableness of a given technology depending on the particular manufacturer's circumstances. On the other hand, the Council on Wage and Price Stability contends that the regulations would have an anticompetitive effect unless the same criteria were applied to all technological assessments for all manufacturers. In the Council's view, the regulation should not tolerate the use of less energy efficient technology by financially weaker manufacturers, since to do so would reward inefficiencies in management, production, or marketing which a competitive market would penalize. Although recognizing merit in the Council's argument, NHTSA cannot contravene the clear Congressional intent that an individual-

ized evaluation be performed. Section 502(d) of House bill H.R. 7014, the direct precursor to the reduction provisions in section 502(d) of the Act, required that "emission standards penalties" be calculated on the basis of "all passenger automobiles to be manufactured in a model year," not limiting consideration to a particular manufacturer's fleet. The House Report on H.R. 7014 (H. Rep. No. 94-340, 94th Cong., 1st Sess. 90 (1975)) states that the determination of an emission standards penalty should be on "an industry-wide basis, rather than a manufacturer-by-manufacturer basis." However, the version of that provision which came out of the Conference Committee contained significantly different language. Under the conference substitute, reductions are to be based on "the reduction in a *manufacturer's* average fuel economy in a model year." (Emphasis added.) Section 502(d) of the Act is replete with references to the petitioning manufacturer's unique circumstances. For example, in evaluating various technological options to determine whether the petitioner applied a reasonably selected technology, the Administration must, under the Act, consider the manufacturer's cost and lead-time requirements. Also, only fuel economy values for the petitioning manufacturer are to be considered in calculating a reduction. Therefore, the Council's position cannot be accepted. It should be noted, however, that beyond 1980, fuel economy standards will be the same for all manufacturers, and any anticompetitive pressures generated by these procedures will no longer exist.

The Council also suggests that a "cost-effectiveness" analysis be performed when evaluating various technological options. The Act requires that NHTSA evaluate the additional costs and fuel savings associated with these options. It is NHTSA's intent to compare the costs of technological improvements with the value of their associated fuel economy benefits. This would be accomplished by placing a dollar value on the gasoline saved. As noted by the Council, it may be appropriate to assume a number of different gasoline prices in conducting this analysis, since the present pump price cannot be expected to reflect the average pump price prevailing over the lifetime of the vehicles produced in the affected model years, nor does it reflect the "social cost" of gasoline. The results of these analyses would be factors considered by the Administration in deter-

mining whether a particular technology is "reasonably selected."

### C. Adjustment and Selection of Production Mix

In certain instances, a petitioner's projected production mix for the affected model year would not be used in calculating reductions. This would occur whenever the petitioner's average fuel economy at the projected mix failed to meet the standard for that model year, even if its vehicles were modified to meet 1975-level nonfuel economy standards. In such cases, the petitioner's projected production mix would be adjusted according to the procedure set forth in section 527.11 of the regulations.

Ford notes that the use of this slightly arbitrary adjustment procedure may result in the use, for calculation purposes, of a production mix which would have been infeasible for the manufacturer to implement. However, NHTSA remains convinced that the proposed adjustment procedure is generally appropriate. Section 502(d) (3) (E) of the Act requires the use in reduction calculation of a production mix which would have resulted in compliance with fuel economy standards. An adjusted mix is used only if the manufacturer would fail to meet the fuel economy standards with its planned production mix, even if the manufacturer's vehicles were designed to meet 1975 nonfuel economy standards in all four categories. If a mix existed which was feasible for the manufacturer and which would have resulted in meeting the fuel economy standard, the manufacturer presumably would have used it rather than risk the substantial civil penalties associated with noncompliance. Furthermore, if no adjustment methodology were specified in advance, petitioners would have an incentive to postulate increased production of those vehicle configurations with a large nonfuel economy standard-related gas mileage penalty. It was deemed necessary, therefore, to use a uniform adjustment methodology. In most instances, the methodology adopted results in reasonable types of adjustments which a manufacturer might well decide to employ in order to comply with the fuel economy standards.

The Center for Auto Safety objected to the adjustment procedure used when no mix of a petitioner's automobiles would meet the applicable fuel economy standard. This situation would arise if the petitioner did not manufacture even a single vehi-

cle configuration whose fuel economy met or exceeded the standard. Under the proposal, such a petitioner would use its projected mix in calculating the reduction, even though that mix failed to satisfy the requirements of section 502(d) (3) (E). The Center recommends using that mix which would come closest to meeting the standard, to wit, all vehicles produced being of that configuration with the highest fuel economy. This suggested revision has been incorporated in the final rule. Since in this situation the section 502(d) (3) (E) requirement cannot be met by any mix vehicles, it is reasonable to come as close as possible to complying with that requirement, which the Center's approach does. As a practical matter, however, it should be noted that it is extremely unlikely that this provision will ever apply to a petitioner. NHTSA is aware of no vehicle manufacturer subject to fuel economy standards which would not qualify for a low-volume exemption under section 502(c) of the Act and which fails to manufacture at least one vehicle configuration whose fuel economy equals or exceeds even the most stringent standard applicable in the 1978-80 period, the 1980 standard of 20 mpg.

Ford also argues that in those instances where a petitioner can demonstrate that its production mix would differ from that projected if 1975-level nonfuel economy standards remained in effect, it should use that revised mix in its set 2 calculation. However, as discussed in the preamble to the NPRM at 41 F.R. 46882, section 502(d) (3) (E) of the Act requires the use of the same production mix for set 1 and set 2 passenger automobiles. Ford did not specifically dispute this statutory construction in its comment. Therefore, the regulations continue to require the use of a single production mix.

### D. Fuel Economy Reduction Calculation Procedures

The most fundamental issue raised with respect to calculation procedures involves the use of analytical methods as an alternative to fuel economy tests in petitions. The notice of proposed rulemaking permitted the use of such methods. General Motors Corp. and Ford argued that such analyses are appropriate and should be permitted. Chrysler, on the other hand, argued that such analyses are inappropriate, at least for deriving the majority of the required fuel economy values. The need to use alternatives to actual fuel economy

testing arises because of three incompatibilities between EPA's fuel economy testing requirements and the procedures for processing reduction petitions. First, EPA test results may not be available for all specified vehicle configurations in time for inclusion in a manufacturer's petition. Section 502(d) (1) of the Act permits manufacturers to submit reduction petitions at any time within the twenty-four months before the beginning of the affected model year. Petitioners would, as a practical matter, hope to file petitions and obtain a final decision as early as possible, in order to obtain maximum leadtime in planning production adjustments which may be necessary depending on the level of the applicable average fuel economy standard. However, required EPA testing may not be completed until just prior to the required date for the manufacturer's preliminary determination of its fuel economy average, 10 days prior to its public introduction date. See 40 CFR 600.506-78 (a). Second, the EPA tests can only provide data with respect to set 1 vehicles, and then only to the extent that the planned production vehicles employ a reasonably selected technology. Third, an incompatibility arises where the projected production mix must be adjusted for purposes of calculating a reduction, and different configurations are required to be tested under the EPA regulations at the adjusted mix than would be required under the projected mix. In each of these cases, EPA test data may not be available for inclusion in the petition for reduction.

The maximum use of actual test data is clearly desirable from the point of view of accuracy in calculating reductions, and is indeed mandated by section 502(d) (2) (A). However, it must be recognized that imposing substantial additional test requirements upon the manufacturers would be extremely burdensome, given the cost of conducting those tests (estimated by Ford at a minimum of \$3,000 per test). Therefore, NHTSA will continue to permit the use of appropriate analytical methods in limited situations. Whether a given method is appropriate will be determined in the context of individual reduction proceedings.

The regulations promulgated herein permit the submission of petitions based on analytical methods, subject to certain conditions. First, the petition must contain all available data from EPA fuel economy testing and the petitioner's own in-house testing program which has been completed

by the time the petition is submitted. Second, the petitioner must schedule its fuel economy testing so that as much testing is completed by the time of submission as is reasonably practicable. Third, to the extent practicable, testing should be scheduled so that those vehicle configurations with the largest projected sales are tested first, so that this important data may be included in the petition. Fourth, the previously discussed monthly updates of petitions must include all additional test data which becomes available. Finally, if set 1 data is based in whole or significant part upon analytical methods, the decision made by NHTSA on the petition will be an "interim decision," subject to revision if there are significant disparities between subsequently obtained EPA test data and the analyses submitted in the petition. See pp. 156-7 of the Conference Report (S. Rep. No. 94-516, 94th Cong., 1st Sess. (1975)). To avoid situations in which the submitted non-test data consistently overstates the reduction shown through actual test results, and to take into account variability in test procedures, the "significance" of disparities between EPA and analytically generated data will be determined with reference to the aggregate impact of all disparities. In other words, large differences between interim and final fuel economy values for individual configurations would not require revision of the interim decision if the differences did not reflect *systematic* bias in the analytical procedure used by the petitioner. "Significant disparities" will be defined as those which, when taken together, would result in a difference of 0.1 mpg or more in the calculated average, the level of precision specified in section 503(e) of the Act for fuel economy calculations. Relatively large but nonsystematic errors would tend to cancel each other out in the overall calculation. The approach adopted in this regulation will permit early processing of petitions and will give the petitioner the advantage of greater leadtime, but will place the risk of using inaccurate analytical methods on the advocate of those methods.

As previously noted, it is unlikely that any test data for set 2 vehicles would be generated unless additional tests were run specifically for the purposes of providing data for a reduction petition. In this regard, Chrysler has suggested conducting tests on prototype vehicles in each of the petitioner's largest-selling vehicle configurations which comprise a total of seventy percent of the

petitioner's sales, then modifying each vehicle tested to comply with 1975-level nonfuel economy standards and retesting the same vehicle. Presumably, analytical methods could be used to provide set 2 data for the other configurations which were not tested, and EPA-approved data would satisfy other set 1 requirements, although Chrysler does not specifically suggest this. This approach would appear to be an entirely appropriate method for generating data for a petition. However, NHTSA will not attempt to establish generally applicable minimum testing requirements for all manufacturers. Manufacturers may submit petitions in which set 2 data is based entirely upon analytical methods. However, such manufacturers should recognize that data based upon analytical methods will not be given the same probative weight as actual test data in NHTSA's review of petitions. As previously noted, particular types of analytical methods may be found to be completely inadequate for predicting fuel economy values, and a petition based on such analyses could not be granted.

Where it becomes necessary to obtain fuel economy data for particular vehicle configurations solely because of required adjustments to the production mix, NHTSA would accept appropriate non-test data for both set 1 and set 2. These configurations would generally not have large sales fractions, even under the adjusted production mix, and would not be tested otherwise.

Ford has suggested that, in calculating a reduction due to emission standards, vehicles subject to the more stringent California emission standards should be included in set 1 but excluded from set 2. This approach would have the effect of lowering set 1 average fuel economy with respect to that of set 2, and thereby increasing the reduction granted, because of the generally lower fuel economy of vehicles subject to California emission standards.

Ford bases its argument on its reading of H.R. 7014, which contained the House version of Title V, and its view of the assumptions on which Congress based the reduction provisions. First, Ford points out that section 502(d) (3) (C) (i) of the Act specifies the first step in calculating a Federal standards fuel economy reduction is determining "the reduction in a manufacturer's average fuel economy in a model year which results from the ap-

plication of a category of Federal standards applicable to such model year, and which would not have occurred had Federal standards of such category applicable to model year 1975 remained the only standards of such category in effect." Section 502(d) (3) (D) lists several "categories of Federal standards," the first of which, emission standards, specifically includes the more stringent California standards. Ford concludes from this that the reference in section 502(d) (3) (C) (i) to the average fuel economy resulting from the application of a "category of Federal standards" for the affected model year, which corresponds to set 1 fuel economy under the regulations, must include California vehicles because of the definition of "category of Federal standards" in section 502(d) (3) (D).

However, in Ford's view, the reference to "Federal standards of such category applicable to model year 1975" in section 502(d) (3) (C) (i), which corresponds to set 2 fuel economy under the regulations, is not subject to the same definition, despite the use of the words "such category" and "Federal standards." Rather, in Ford's view, the standards on which set 2 fuel economy is to be based are to be determined by referring to section 502(d) of H.R. 7014, which bases the calculation of an emission standards fuel economy penalty on the 1975-level 49-state emission standards. Ford's second argument is that reductions must be calculated in a manner consistent with the procedure Congress used to project the 1980 fuel economy standard, which was based on the level of fuel economy achieved at 1975-level 49-state emission standards, again referring to H.R. 7014 and its legislative history.

NHTSA is unable to accept this argument. The language of section 502(d) of the Act is unambiguous on its face in this respect. Reductions are to be calculated on the basis of changes in stringency in a "category of Federal standards," and, in the case of emission standards, the category was defined to include the more stringent California standards. The differences in the language of the phrases "category of Federal standards" and "Federal standards of such category" are too minor to justify giving them completely different meanings, especially when the latter phrase clearly refers to the former. If the meaning of a statute is unambiguous on its face, the generally accepted rules of statutory construction prohibit reference to the legislative history to seek a different meaning.

Even assuming *arguendo* that Ford's reading of H.R. 7014 is correct, it does not follow that the Conference Committee necessarily adopted the House provision in total. Ford argues that the Conference Committee lacked authority to amend the House version since, under 2 U.S.C. 190c(a), a Conference Committee can amend a provision only where the House and Senate versions disagree. If Ford's reading of the House bill is correct, the two bills must be viewed as being inconsistent. Under section 504 of S. 1883, baseline fuel economy was established at the "industrywide average fuel economy level for model year 1974," which must be read to include California vehicles. Fuel economy standards were to be established taking into account "the impact of other Federal standards." See § 504(a) (3) of S. 1883. The product of the Conference Committee would necessarily, therefore, be viewed as a "germane modification of subjects in disagreement" between the two bills. 2 U.S.C. 190c(a).

Furthermore, to the extent that the reduction procedure and the 1978 fuel economy standards set forth in H.R. 7014 were drafted with an assumed baseline of 1975 49-state emission standards in mind, the manufacturers will not suffer under the Conference substitute from any increased stringency due to the inclusion of California vehicles. The Conference substitute decreased each of the fuel economy standards applicable in model years 1978 to 1980 by 0.5 mile per gallon and reduced the amount by which the calculated average fuel economy penalty must be diminished when calculating the allowable reduction from 1.0 to 0.5 mile per gallon per category of standards.

Ford's approach is also inconsistent with the purpose of section 502(d). If the intent of that provision is to first measure the impact on fuel economy of affected model year nonfuel economy standards with respect to 1975-level standards and to give the manufacturers partial credit for that impact, the Ford approach would overstate the actual fuel economy penalty experienced. In fact, it is theoretically possible under Ford's approach for a manufacturer to obtain an emission standards reduction where affected model year and 1975 emission standards are identical in stringency. The more stringent California emission standards had a measurable impact upon average 50-state vehicle fuel economy in 1975. Congress recognized that fact in adopting section 502(d), and the final regulations must also take that fact into account.

Chrysler Corporation stated that the NPRM was unclear regarding the methodology to be used for revising the 1978 or 1979 standard for domestic passenger automobiles with includable captive imports when a manufacturer requests the reduction of the standard as it applies to those vehicles, but not as it applies to the residual, nonincludable group of captive imports. Under the reduction regulations, the manufacturer is to provide for its captive imports the same type of technological information that it is required to provide for its domestically manufactured vehicles. The fuel economy calculations are to be performed in accordance with EPA procedures in 40 CFR Part 600. With respect to the treatment of captive imports in model years 1978 and 1979, 40 CFR 600.511-78 restates the requirements of section 503(b) of the Act. Under § 600.511-78, the petitioner separately calculates, using the projected production mix, the average fuel economy of its planned imports for the affected model year. Next, the petitioner divides its planned imports into its "includable base import volume" and into a residual group of planned imports. Both groups are deemed to have the same average fuel economy as the manufacturer's overall volume of planned imports. In calculating a reduction, as in calculating an overall fuel economy average for standards compliance purposes, the "includable" imports are treated as a single model type with a sales volume equal to the includable base import volume. That model type is added to the model types of domestically manufactured passenger automobiles. The residual group is not included in the calculation. Corresponding technological information and fuel economy calculations are required to be provided for the set 2 vehicles with the technology modified to reflect the assumption of 1975-level nonfuel economy standards in those categories for which a reduction is sought.

The NPRM raised the issue of how to take into account possible interactions between technology used by a manufacturer to comply with different categories of nonfuel economy standards. Such interactive effects might appear if, for example, compliance with a vehicle damageability standard required the addition of relatively heavy bumpers to a vehicle and the additional weight made com-



pliance with emission standards more difficult.<sup>1</sup> The procedure set forth in the NPRM would have calculated a reduction by separately assessing the impacts of the two standards, if reductions for both damageability and emission standards were requested. The damageability standards reduction would have been calculated by subtracting the average fuel economy of the vehicles designed to comply with all categories of affected model year standards (set 1) from the average fuel economy of those vehicles at 1975-level damageability standards and affected model year standards in all other categories (set 2), less 0.5 mile per gallon. The 0.5 mile per gallon per category of standards is subtracted as required by section 502(d) (3) (C) of the Act. See Table 1.

TABLE 1

	Emission standards	Safety standards	Noise standards	Damageability standards
Set 1 .....	AMY <sup>1</sup>	AMY	AMY	AMY
Set 2 .....	AMY	AMY	AMY	75 MY

<sup>1</sup> AMY = affected model year

Similarly, under the procedure in the NPRM, the reduction attributable to more stringent emission standards would be calculated by subtracting the same set 1 fuel economy as in Table 1 from the average fuel economy of those vehicles designed to meet 1975-level emissions standards and affected model year standards in all other categories of standards, less 0.5 mile per gallon. See Table 2.

TABLE 2

	Emission standards	Safety standards	Noise standards	Damageability standards
Set 1 .....	AMY <sup>1</sup>	AMY	AMY	AMY
Set 2 .....	75 MY	AMY	AMY	AMY

<sup>1</sup> AMY = affected model year

The total reduction would have been calculated by summing the two numbers calculated above. This sum may not reflect the actual fuel economy penalty suffered by the petitioner due to the interac-

<sup>1</sup> It is also possible that compliance with more stringent standards in one category may facilitate compliance with more stringent standards in another category. For example, a safety requirement relating to high-speed crash survivability might require the use of "soft" vehicle front ends, which reduce vehicle weight and might, therefore, make compliance with emission standards easier.

tion problem. This becomes apparent when one considers that the comparison in Table 1 would measure not just the damageability standards penalty, but also an emission standards impact resulting from the ability of set 2 vehicles to use less extensive emission controls, due to their lighter weight. The impact of emission standards could be partially "double counted" in the above example.

Ford has suggested an alternative method for calculating reductions which avoids the interaction problem by not attempting to apportion the total fuel economy penalty incurred among the various categories of standards for which a reduction is sought. Under Ford's approach, the same set 1 vehicles would be used as above. However, set 2 would include vehicles designed to meet 1975-level standards in all categories for which a reduction is sought. In the example above, where reductions for both emission and damageability standards were sought, the two sets would be defined as set forth in Table 3.

TABLE 3

	Emission standards	Safety standards	Noise standards	Damageability standards
Set 1 .....	AMY <sup>1</sup>	AMY	AMY	AMY
Set 2 .....	75 MY	AMY	AMY	75 MY

<sup>1</sup> AMY = affected model year

In calculating a reduction, the difference in fuel economy of the two sets would be calculated, and 0.5 mile per gallon would be subtracted for each category of standards for which a reduction is sought. Thus, in the example above, 1.0 mile per gallon would be subtracted from the fuel economy difference between the two sets.

The Ford approach greatly reduces the data requirements and simplifies calculations where reductions for more than one category of standards are sought. In addition, the Ford procedure is mathematically equivalent to that specified in the Act, merely rearranging and reassociating the terms in the overall summation. Where interactions are present, the Ford procedure measures the true total impact on fuel economy, while the procedure specified in the NPRM, as the NPRM preamble noted, could either overstate or understate that effect. The fact that the Ford procedure does not assign a fuel economy penalty to each of the separate categories of standards is un-

important, since the total penalty is the critical number in adjusting the fuel economy standard. The only possible inaccuracy in the Ford procedure would occur if, for example, one of the categories of standards had an associated fuel economy difference between the two vehicle sets of less than 0.5 mile per gallon. Under the NPRM approach, the fact that the difference for category A was less than 0.5 mile per gallon would have no effect on the calculation of the applicable fuel economy reduction for category B. The only significance of the fact would be that no applicable fuel economy reduction would be allowed for category A. Under the Ford approach, there would be such an effect since the differences for the two categories are added together and then 1.0 mile per gallon (0.5 mile per gallon for each category) is subtracted from the total difference. To the extent that 0.5 mile per gallon was greater than the difference for category A, it would be subtracted from the potential reduction obtainable under category B. A petitioner could avoid this penalty, however, by simply not applying for a reduction in that category. Although the statute defines separate reductions for each category of standards, nothing in the statute requires that these numbers be separately calculated.

Therefore, the NHTSA has revised the final regulations to incorporate the Ford proposal. The regulations no longer provide for the separate calculation of "applicable fuel economy reductions" as in § 527.10 of the proposed rule, and corresponding revisions have been made in other sections.

American Motors Corporation raised two issues relevant to the manner in which reductions are calculated. First, it suggested that uniform reductions be promulgated for all manufacturers where changes in stringency of nonfuel economy standards occur and where the impact of those changes is similar for all manufacturers. Although it is not inconceivable that such a situation could arise, NHTSA is unaware of any cases of this type, and does not anticipate promulgating uniform reductions at this time. In order to grant a reduction NHTSA must evaluate the technology actually used by a manufacturer and other technology which might have been reasonably selected. Both of these determinations are necessarily individualized, necessarily made in the context of an individual manufacturer's situation, and the overall

determination would not, therefore, lend itself to uniform treatment. See discussion of reasonably selected technology in section IIIb. AMC's second point was that changes in nonfuel economy test procedures which affect the stringency of those standards should be treated the same as changes in the numerical level of the standards. NHTSA agrees that where a test procedure change has this effect, the change should be treated the same as a revision to the standard for purposes of calculating a reduction. However, whether particular test procedure changes will be deemed to have such an effect must be determined in individual reduction proceedings, since the precise effect of such changes may differ for the various automobile manufacturers. Changes in the emission test procedures which impact measured fuel economy values (the emission and city fuel economy test procedures are the same) for 1978, 1979, or 1980 would be evaluated for comparability under section 503(d) (1) of the Act. Changes in nonfuel economy test procedures or standards which occur after 1980 would be reflected in possible amendments to the fuel economy standards, under section 502(f).

Ford raised the issue of whether petitioners would be permitted to base their analyses on their need to build vehicles in such a way that the vehicles will have a high probability of meeting applicable nonfuel economy standards. Ford maintains it must "target" its production process to the achievement of an effectively more stringent standard, in order to take into account product variability and, in the case of emissions, performance deterioration of control technology. To the extent that a petitioner can demonstrate that its projected design targeting is reasonable and consistent with past practice, such level may be taken into account in petitions. However, NHTSA will carefully scrutinize any purported lower design targets to assure that assumed safety margins are reasonable in light of methods available to manufacturers to reduce these margins without undue risk and its own past practices. Among these methods might be retesting failed vehicles, certifying several versions of individual models intended for sale, and avoiding recertification of a previous year's vehicles which met a subsequent year's more stringent nonfuel economy standards.

The Ethyl Corporation argued that all fuel economy calculations must take into account the different amounts of energy needed to produce a

gallon of leaded or unleaded gasoline. The need for unleaded gasoline was generated in part by the adverse impact of lead additives on some emission control devices. However, the determination of the equivalence of various types of automobile fuels is the responsibility of EPA under section 503(d) (2) of the Act and it would be improper for NHTSA to attempt to decide the matter in this proceeding.

#### E. Hearing Procedures and Processing of Petitions

Several comments were received with respect to the question of the proper format for reduction proceedings. Since some of those comments resulted from misunderstandings of or ambiguities in the NPRM, it is worthwhile to restate and clarify the intended procedures. The proceeding would commence with the submission of a petition by a manufacturer. The Administrator would then evaluate the petition to assure that it meets each of the requirements of §§ 527.5 through 527.12 of the regulations. If the petition is deemed to be incomplete, the Administrator would so notify the petitioner, specifying the additional material needed. Once a complete petition is received, it is placed in a public docket, and a copy of the petition is transmitted to the Federal agency responsible for the administration of the category of standards for which a reduction is sought for that Agency's evaluation. For example, in the case of a petition for an emission standards reduction, a copy of the petition would be sent to the Environmental Protection Agency. Simultaneously, the Administrator would publish a notice of receipt in the FEDERAL REGISTER. The notice would state that a petition had been received, identify the petitioner, cite the reduction requested and summarize the petitioner's rationale therefor, state the Administrator's options for disposition of the petition and list the criteria to be applied in evaluating the petition. The notice would also identify the location of copies of the petition available for public inspection and solicit comment on the petition. Once comments are received from interested parties and Federal agencies and evaluated, a proposed decision or, as appropriate, set of alternative decisions would be published. In the latter case, the proposal would set forth reasonable alternative dispositions of the issues, granting, denying, or denying in part the reduction. The alternatives could range from complete denial to complete granting of petitions,

but neither of these extreme positions would be proposed unless NHTSA concluded that those levels could be supported by available data and information and were based on reasonable assumptions and judgments. This will permit advocates of either granting or denying the petition to focus their comments on attacking the undesirable alternative or alternatives and supplementing the data base for the desired one. The proposal would set forth the data, analyses, and methodology on which each alternative disposition is based, and would request comments from the public. The notice also establishes a time and place for a public hearing. Following the hearing, and subsequent comment period, the entire record for the proceeding is reviewed and an interim or final decision is published. An interim decision is subject to readjustment when EPA test data becomes available, after an opportunity for public comment on the readjustment.

EPA's Office of Mobile Source Air Pollution Control (OMSAPC) and the Center for Auto Safety have suggested that proceedings held pursuant to this regulation be patterned after those held in the past by EPA on the suspension of automotive emission standards. Under the suggested EPA procedure, a notice of receipt would be published containing the same information as the notice of receipt in the NHTSA procedure, plus information about the required hearing. OMSAPC and the Center for Auto Safety suggest eliminating the proposed decision from the NHTSA procedure. They propose holding the public hearing after the issuance of the notice of receipt and then proceeding to a final notice. OMSAPC argues that this procedure is legally sufficient and superior from a policy standpoint to the NHTSA procedure.

With respect to the first point, it is true that initial notices which do not provide detailed information on every aspect of the final rule adopted are appropriate in some cases. See, e.g., *Ethyl Corp. v. EPA*, 541 F.2d 1, at 48. However, courts may be less tolerant of such "general" notices in rulemaking proceedings which have significant adjudicatory aspects. In such cases, the inclusion of a requirement for opportunity for oral comment in addition to the usual opportunity for submission of written comments may evince a Congressional policy of encouraging greater "give-and-take" in the rulemaking proceeding, which may in turn require a more detailed description of the "subjects

and issues involved." See, e.g., "International Harvester," supra at 632, where the court expresses diffidence with respect to the opportunity for full public comment provided in the EPA procedure. Also, the statutory requirements under which NHTSA proceedings will be held differ in two respects from those under which EPA operated. First, no statutory time constraint is specified for the completion of a reduction proceeding, as was the case under the Clean Air Act. The court in "International Harvester" frequently cited the Clean Air Act "60 day requirement" as a basis for tolerating certain procedural "short-cuts." 478 F.2d at 629, 631, 632. Second, unlike EPA, NHTSA rulemaking, under section 502(d) is subject to the "substantial evidence test" in any subsequent judicial review. 15 U.S.C. 2004(a). Although the courts are still grappling with the question of the effect of combining informal rulemaking under 5 U.S.C. 553, normally subject to the less stringent "arbitrary and capricious" test of 5 U.S.C. 706(2)(A), with the substantial evidence test, at least one court has concluded that such a combination necessitates additional procedural safeguards to assure the opportunity for a full dialogue between the agency and interested parties. *Mobil Oil Corp. v. FPC*, 483 F.2d 1238, 1257-1263 (D.C. Cir. 1973). This may also necessitate the presentation of a more precise statement of the agency's views at a time prior to the formulation of a final rule. NHTSA does not conclude from this discussion that a procedure such as EPA's is necessarily inadequate in the context of section 502(d), but rather that substantial legal questions may exist with respect to the appropriateness of that procedure.

OMSAPC also argues that its procedures would avoid shifting the burden of proof in a proceeding away from the petitioner. However, under the EPA procedure, once the petitioner makes its *prima facie* case, the burden is shifted to anyone, including the agency, which seeks to apply a different methodology to reach a different result. See "International Harvester," supra at 643. The only effect of the proposed decision in the NHTSA procedure is to clarify where the burden of proof lies at that time, by either advancing one or more alternative methodologies or concurring in the petitioner's.

In addition, NHTSA disagrees with the policy arguments made by OMSAPC. The original intent of the regulations has been clarified to require that the notice of receipt will solicit comments from the

general public. (See letter from Stephen Wood, Assistant Chief Counsel, NHTSA, to Eric Stork, Deputy Assistant Administrator for Mobile Source Air Pollution Control, EPA, dated November 17, 1976, Docket FE 76-2, No. 1A.) Taken together with our prior statement that the views of other affected Federal agencies would be solicited (41 F.R. 46884) and formal interagency review requirements for rulemaking, it appears that OMSAPC's objections regarding NHTSA taking a position on a petition prior to receiving any outside input have been met. Furthermore, it is NHTSA's view that the use of a proposed decision will achieve a significant improvement over the EPA procedure, by soliciting public comment on not only Agency methodology (it is not clear from the OMSAPC comment that they even recommended this, the "International Harvester" requirement for such comment notwithstanding), but also on the application of that methodology. While the law may not require such a full opportunity for comment, NHTSA deems it appropriate to provide more than the bare minimum which the Administrative Procedure Act requires. In light of this, NHTSA cannot conclude that the EPA procedure is clearly superior to that set forth in this regulation from a policy standpoint.

With respect to the issues of the desirability of permitting "two cycles of notice and comment" on complex matters and making public the agency's views on matters important to the final rulemaking at a time prior to the final decision, "in order to enhance the usefulness of further comments," the positions adopted in this regulation appear to be supported by a recent recommendation of the Administrative Conference of the United States. See Recommendation No. 76-3, 1 CFR 305.76-3, also published in 41 F.R. 29654, July 19, 1976.

There is some merit in the points raised by OMSAPC and the Center for Auto Safety, in regard to the likelihood that an agency which proposes a specific rule has a natural tendency to resist changes to the rule. Efforts to minimize this acknowledged phenomenon conflict with NHTSA's need to provide a full opportunity for public comment by clearly detailing the relevant considerations in the proceeding. NHTSA has attempted to balance these conflicting considerations by providing in the regulation that the proposed decision will, when appropriate, contain alternatives which establish a reasonable range of justifiable reduc-

tions, or denial of the petition. Therefore, the proposed procedure, as clarified, has been retained.

Several commenters raised the issue of the need for NHTSA to act on petitions as expeditiously as possible. Recognizing the importance of an early decision to the petitioning manufacturer, NHTSA will endeavor to complete the entire decision process within 180 days from the time a complete petition is received. If complying with that goal proves impossible, NHTSA will still make every effort to expedite the decision, albeit by a later date.

Several changes to the procedures for the public hearing on petitions were adopted. As suggested by EPA, individuals other than NHTSA officials may serve on the hearing panel. In order to emphasize the need for complete and accurate presentations at the hearing, all testimony will be made under oath. In addition, any participant in the proceeding may petition NHTSA to use its authority under section 505(b) of the Act to compel the appearance and testimony at the hearing of any individual shown to have relevant information necessary to an informed decision in the proceeding. The agency may well use that authority on its own initiative to secure the testimony of automobile manufacturers and suppliers of automobile components. Notice of the public hearing will be given through the issuance of a press release by NHTSA, in addition to a FEDERAL REGISTER notice, in order to inform the public at large.

#### F. Treatment of Confidential Information

Several commenters discussed the question of how NHTSA should handle petitioners' requests for confidential treatment of information included in petitions for reduction. In such cases, the public's need to obtain access to the information in order to make informed comments on the petition runs counter to the manufacturer's desire to prevent disclosure of information which may be of some benefit to its competitors. This same conflict appears in most of NHTSA's rulemaking activities under Title V of the Act. In recognition of the importance of these issues, NHTSA published a notice requesting comment on how these requests for confidential treatment should be handled. 42 F.R. 3240 (January 17, 1977).

After evaluating comments submitted on this issue in the context of this proceeding and the January 17 notice, NHTSA deems it appropriate to alert potential petitioners to the agency's intention to grant confidential treatment to information submitted as part of reduction petitions only in exceptional circumstances. This approach is taken under the authority of section 505(d) (1) of the Act which permits the release of trade secret information where relevant to any administrative or judicial proceedings. NHTSA does this for several reasons. First, Congress has expressed its intent that the 1976-80 fuel economy standards established in section 502(a) (1) of the Act should be entitled to a strong presumption of validity and should be modified only on a clear showing by a petitioner and after a broad opportunity for public participation in the reduction proceeding. Unlike most other rulemaking under the Motor Vehicle Information and Cost Savings Act, Congress specified that section 502(d) rulemaking would be subject to the more stringent "substantial evidence" test in any subsequent judicial review, and that participants in the rulemaking proceeding would be entitled to make oral presentations, in addition to the usual opportunity for written comment. See 15 U.S.C. 2002(g) and 2004(a). In view of the manufacturer-specific nature of reduction proceedings (see section IIIb above), the ability of participants in the proceeding to effectively comment on all relevant issues would be limited unless they have access to the entire petition. This is a greater problem in the context of reduction proceedings than in most rulemaking proceedings, where industry-wide considerations and long-term capabilities are of greater relevance. The portions of a petition for which a petitioner is most likely to request confidential treatment, projected production mix and technology to be employed or capable of being employed in the affected model year, will be critical to an informed analysis of the petition and are likely to be central issues in NHTSA's final decision. Second, no manufacturer is required to submit a reduction petition, so that the potential release of any confidential information is, in a sense, voluntary on the part of the manufacturer. Although manufacturers possess a statutory right to petition for a reduction, it is not unreasonable for NHTSA, in exercising its discretionary authority under section 505(d) (1) to promote the goals of Title V, to require manufacturers to balance their

need for a reduction against the potential danger from release of the contents of their petition. Failure to obtain a reduction is unlikely to have devastating consequences for a manufacturer. All manufacturers other than those qualifying for "low-volume" exemptions under section 502(c) of the Act are expected to have average fuel economies either closely approaching or exceeding the applicable fuel economy standards for model years 1978-80. Thus, even in the worst case, a manufacturer which, without a reduction, would fail by a small margin to meet the standard, could elect to pay the civil penalty specified in section 508, which, because of the manufacturer's nearly meeting the standard, would be relatively small on a per-vehicle basis, compared to the price of the automobile. On the other hand, such a manufacturer could elect to implement some of the technological improvements which would be necessary to meet the next year's fuel economy standard in any case, one year early in order to avoid paying the penalties. Finally, the information submitted in a petition would become public in a relatively short time regardless. Petitions must be submitted within two years of the start of the affected model year under section 502(d) (1). In most cases, a competitor would not have adequate leadtime to take advantage of the information contained in the petition between the time of submission and the start of the affected model year, when the information necessarily becomes public through the sale of the affected model year vehicles. For these reasons,

NHTSA will grant confidential treatment to information contained in reduction petitions only in exceptional, and presently unforeseen, circumstances.

#### **IV. Economic and Environmental Impacts**

The economic and environmental impacts of these regulations were evaluated and found to be minimal. The granting of denial of reductions based on these regulations may have significant impacts but those impacts will be individually evaluated in the context of individual reduction proceedings. No adverse environmental impacts were found to be associated with this essentially procedural regulation itself. The only economic impacts would involve staff time spent in preparing and evaluating petitions and perhaps a small number of additional fuel economy tests. The additional costs attributable to the rule are expected to be under three million dollars total for both the industry and the government, based on the submission of four petitions.

The program official and lawyer principally responsible for the development of this regulation are Ralph J. Hitchcock and Roger C. Fairchild, respectively.

Issued on November 4, 1977.

Joan Claybrook  
*Administrator*  
**42 F.R. 58938**  
**November 14, 1977**

## PART 527—REDUCTION OF PASSENGER AUTOMOBILE AVERAGE FUEL ECONOMY STANDARDS

(Docket No. FE 76-2; Notice 2)

### Sec.

- 527.1 Scope and purpose.
- 527.2 Applicability.
- 527.3 Definitions.
- 527.4 Eligibility.
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- 527.6 Technology.
- 527.7 Fuel economy.
- 527.8 Average fuel economy.
- 527.9 Federal standards fuel economy reduction.
- 527.10 Projected production total and mix.
- 527.11 Production mix for determining Federal standards fuel economy reductions.
- 527.12 Calculation of fuel economy values and average fuel economy.
- 527.13 Supplementary information requirements.
- 527.14 Processing of petitions.
- 527.15 Public hearing.
- 527.16 Public inspection of information.

**AUTHORITY.**—Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2002); delegation of authority at 41 FR 25015, June 22, 1976.

### § 527.1 Scope and purpose.

This part establishes procedures for the submission and disposition of petitions filed by manufacturers of passenger automobiles to obtain reduction of the applicable average fuel economy standard for model year 1978, 1979, or 1980. These reductions are intended to offset any loss of fuel economy due to the application in that year to passenger automobiles of Federal emission, safety, noise, or damageability standards more stringent than those applicable in model year 1975. This part also establishes procedures for holding public hearings on those petitions.

### § 527.2 Applicability.

This part applies to manufacturers of passenger automobiles.

### § 527.3 Definitions.

(a) *Statutory terms.* (1) The terms "Federal standards fuel economy reduction," "fuel," "manufacturer," "model year," and "reasonably selected technology" are used as defined in section 501 or 502 of the Act.

(2) The terms "average fuel economy," "fuel economy," and "model type" are used in 40 CFR 600.002-77.

(3) The terms "automobile" and "passenger automobile" are used as defined in section 501 of the Act and in accordance with the determinations in 49 CFR Part 523.

(b) *Other terms.* (1) The terms "base level" and "vehicle configuration" are used as defined in 40 CFR 600.002-77.

(2) As used in this part, unless otherwise required by the context—

"Act" means the Motor Vehicle Information and Cost Savings Act (Pub. L. 92-513), as amended by the Energy Policy and Conservation Act (Pub. L. 94-163).

"Administration" means the National Highway Traffic Safety Administration.

"Affected model year" means the model year for which a reduction of an average fuel economy standard is requested under this part.

"Category of Federal standards" means any of the following categories of motor vehicle standards and associated measurement procedures—

(1) Emissions standards issued under section 202 of the Clean Air Act (42 U.S.C. 1857f-1), and emissions standards applicable by reasons of section 209(b) of that Act (42 U.S.C. 1857f-6a(b));

(2) Safety standards issued under the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1381 et seq.);

(3) Noise emission standards issued under section 6 of the Noise Control Act of 1972 (42 U.S.C. 4905); or

(4) Property loss reduction standards issued under title I of the Act (15 U.S.C. 1911 et seq.).

"EPA Administrator" means the Administrator of the Environmental Protection Agency.

"Modifications" means changes by a petitioner in the technology of a passenger automobile consistent with the need of the Nation to improve automobile fuel economy and with the energy savings, economic costs, and leadtime requirements associated with the technologies that would have been practicably available to the petitioner given the applicability of the model year 1975 standards in the category or categories of Federal standard for which a reduction is sought.

"NHTSA Administrator" means the Administrator of the National Highway Traffic Safety Administration.

"Production mix" means the number of passenger automobiles, and the percentage of the petitioner's annual total production of passenger automobiles, in each vehicle configuration which a petitioner plans to produce in a specified model year.

"Set 1" means the set of passenger automobiles which a petitioner will produce in the affected model year.

"Set 2" means the set of passenger automobiles which a petitioner would have produced in the affected model year had the model year 1975 standards in all categories of Federal standards for which a Federal standards fuel economy reduction is sought been the only standards in those categories.

#### **§ 527.4 Eligibility.**

Any manufacturer of passenger automobiles may petition the NHTSA Administrator under this part for a reduction of the average fuel economy standard applicable to passenger automobiles for model year 1978, 1979, or 1980.

#### **§ 527.5 Requirements for petition.**

Each petition filed under this part must:

(a) Request the reduction of an average fuel economy standard for not more than one model year;

(b) Identify the affected model year;

(c) Be submitted within the 24-month period immediately preceding the beginning of the affected model year;

(d) Be submitted in twenty copies to: Administrator, National Highway Traffic Safety Administration, Washington, D.C. 20590;

(e) Be written in the English language;

(f) State the full name, address, and title of the official responsible for the preparation of the petition; and

(g) Set forth in full the data, views, and arguments of the petitioner supporting the Federal standards fuel economy reduction requested in its petition, including the information and data specified in §§ 527.6 through 527.12 and the calculations and analyses used to develop the information and data. No documents may be incorporated by reference in a petition unless the documents are submitted with the petition.

#### **§ 527.6 Technology.**

(a) The petitioner shall submit the following information as part of its petition—

(1) *Set 1 technology.* For each vehicle configuration specified in 40 CFR 600.506(a) (2) (iii) of the petitioner's passenger automobiles to be produced in the affected model year, the information specified in paragraph (a) (1) (i) and (ii) of this section:

(i) A description of the technology that is incorporated in the vehicle configuration and that either relates to the petitioner's efforts to comply with any category of Federal standards or affects the fuel economy of the vehicle configuration;

(ii) A description of any alternative or additional technology that was practicably available to the petitioner for incorporation in the vehicle configuration and the use of which would have enabled that vehicle configuration to achieve higher fuel economy and would have resulted in a smaller Federal standard fuel economy reduction than the technology described under paragraph (a) (1) (i) of this section; and



(iii) For each item of alternative technology described under paragraph (a)(1)(ii) of this section, a statement of the reasons for not incorporating the item, including a comparison of the fuel savings, economic costs and lead-time requirements of that item and of the technology that was incorporated in the vehicle configuration.

(2) *Set 2 technology.* A description of the modifications that the petitioner would have made to each vehicle configuration specified in 40 CFR 600.500(a)(2)(iii) had the model year 1975 standards in all categories of Federal standards for which a Federal standards fuel economy reduction is sought been the only standards in those categories for the affected model year.

#### **§ 527.7 Fuel economy of vehicle configurations and model types.**

The petitioner shall submit a fuel economy value for each vehicle configuration specified in 40 CFR 600.506(a)(2)(iii) and for each model type of the petitioner's set 1 and set 2 passenger automobiles.

#### **§ 527.8 Average fuel economy.**

The petitioner shall submit the average fuel economy determined in accordance with § 527.12(c) of the petitioner's set 1 and set 2 passenger automobiles.

#### **§ 527.9 Federal standards fuel economy reduction.**

Federal standards fuel economy reductions shall be calculated as follows:

(a) Subtract—

(1) Set 1 fuel economy determined under § 527.8 from—

(2) Set 2 fuel economy determined under § 527.8; and

(b) Subtract 0.5 miles per gallon from the result obtained under paragraph (a) of this section for each category of Federal standards for which a Federal standards fuel economy reduction is sought.

#### **§ 527.10 Projected production total and mix.**

(a) The petitioner shall submit its projections, based on the average fuel economy standard for passenger automobiles as specified in the Act for the affected model year, of its total production and production mix of all model types of its passenger automobiles for the affected model year, and all

vehicle configurations within each of those model types, and information demonstrating that those projections are reasonable. The information shall include information showing that those projections are consistent with the petitioner's mixes of passenger automobiles produced or expected to be produced in each model year from model year 1975 through the model year immediately preceding the affected model year, its passenger automobile production capacity for the affected model year, its efforts to comply with that average fuel economy standard, and the anticipated consumer demand for passenger automobiles during that model year.

#### **§ 527.11 Production mix for determining Federal standards fuel economy reductions.**

The production mix to be used for calculating Federal standards fuel economy reductions shall be the mix or mixes specified in paragraph (a), (b), or (c) of this section, as appropriate.

(a) (1) The production mix to be used shall be the mix projected under § 527.10 if either of the following conditions are met:

(i) The average fuel economy determined in accordance with § 527.12(c) of the petitioner's passenger automobiles for the affected model year, based upon the production mix projected under § 527.10, equals or exceeds this applicable average fuel economy standard; or

(ii) The average fuel economy based on the mix projected under § 527.10 of the petitioner's passenger automobiles to be produced in the affected model year with the modifications that the petitioner would have made to them had the standards in one or more categories of Federal standards for model year 1975 been the only standards in that category or categories in effect during the affected model year equals or exceeds the applicable average fuel economy standard.

(2) If the condition in paragraph (a)(1)(i) of this section is not met but the condition in paragraph (a)(1)(ii) of this section is met, the petitioner shall provide the information specified in §§ 527.6, 527.7, and 527.8 for the passenger automobiles described in paragraph (a)(1)(ii).

(b) If the average fuel economy of no mix of passenger automobiles for the affected model year as modified under § 527.11(a)(1)(ii) equals or exceeds the applicable average fuel economy standard, the production mix to be used shall be that

mix with production total equal to that total projected under § 527.10 and with all vehicles being of the vehicle configuration with the highest fuel economy.

(c) The production mix to be used shall be that mix calculated under this paragraph if none of the criteria in paragraphs (a) or (b) of this section are met. For the purposes of adjusting the production mix pursuant to this paragraph, the following procedures shall be followed:

(1) Assume initially that the modified passenger automobiles specified in paragraph (a) (1) (ii) of this section are to be produced in the production total and mix projected under § 527.10.

(2) Keeping that total production constant, adjust that production mix as follows:

(i) For each model type of those modified passenger automobiles whose fuel economy is less than the average fuel economy standard for passenger automobiles for the affected model year, decrease the numbers of those modified passenger automobiles in that model type and in each vehicle configuration within that model type by 0.1 percent.

(ii) For each model type of those modified passenger automobiles whose fuel economy is equal to or greater than that standard, increase the numbers of those modified passenger automobiles in that model type and in each vehicle configuration within that model type by that percentage which, in conjunction with the decrease specified in paragraph (c) (2) (i) of this section, will keep the total production constant.

(3) Calculate the average fuel economy of the production mix as adjusted under paragraph (c) (2) of this section.

(4)(i) If the average fuel economy calculated under paragraph (c) (3) of this section equals or exceeds the applicable fuel economy standard, the mix as adjusted under paragraph (c) (2) of this section shall be used for calculating Federal standards fuel economy reductions.

(ii) If the average fuel economy calculated under paragraph (c) (3) of this section is less than the standard, adjust the projected production mix further by repeating the procedure in paragraphs (c) (2) and (3) of this section until the first production mix is reached

whose average fuel economy equals or exceeds that standard.

#### **§ 527.11 Calculation of fuel economy values and average fuel economy.**

For the purposes of this part, fuel economy values shall be determined as follows:

(a) *Determination of vehicle configuration fuel economy values.* (1) For each vehicle configuration for which a fuel economy value is required under 40 CFR 600.506(a) (2) (i) through (a) (2) (iii) and for which a fuel economy value has been determined and approved under 40 CFR Part 600, the petitioner shall submit that fuel economy value.

(2) For each vehicle configuration for which a fuel economy value is required under 40 CFR 600.506(a) (2) (iii) and for which an approved value does not exist, the petitioner shall submit a fuel economy value based on tests or analyses comparable to those prescribed or analysed under 40 CFR Part 600 and a description of the test procedures or analytical methods. Values based on actual tests conducted in accordance with procedures specified in Subpart B of 40 CFR Part 600, shall be entitled to greater probative weight in NHTSA's evaluation of petitions than values based on analytical methods. Values to be used in the average fuel economy calculation in § 527.8 and based on methods other than such actual tests will be acceptable to NHTSA only if the petitioner demonstrates in its petition that—

(i) The petition contains all data previously approved by EPA and all relevant fuel economy test data from the petitioner's in-house testing program;

(ii) To the maximum extent practicable, all fuel economy testing required to be conducted under 40 CFR Part 600, has been scheduled so that as much testing as possible is completed prior to the submission of the petition; and

(iii) To the maximum extent practicable, testing required to be conducted under 40 CFR Part 600, has been scheduled so that those vehicle configurations with the largest projected sales are tested first.

(b) *Determination of model type fuel economy values.* For each model type, the petitioner shall submit a fuel economy value based on the values determined in accordance with paragraph (a) of

this section and calculated in the same manner as model type fuel economy values are calculated for use under Subpart F of 40 CFR Part 600.

(c) *Determination of average fuel economy.* Average fuel economy shall be based upon fuel economy values calculated under paragraph (b) of this section for each model type and shall be calculated in accordance with 40 CFR 600.506, except that—

(1) The production mix determined under § 527.11 shall be used in place of projected sales; and

(2) Fuel economy values for running changes implemented and for vehicle configurations added are required only for those changes or additions made before the submission of the petitioner's petition. Data for subsequent running changes and added vehicle configurations must be included in reports submitted under § 527.13(c).

#### **§ 527.13 Supplementary information requirements.**

(a) The petitioner shall provide the NHTSA Administrator with any revisions that it makes, after submitting its petition and before a final decision is rendered under § 527.14, to the production mix and total provided under § 527.10. The petitioner shall submit information demonstrating that the revisions are reasonable, including the information described in § 527.10.

(b) For each vehicle configuration of the petitioner's passenger automobiles to be produced in the affected model year for which a fuel economy value is generated by the petitioner's in-house testing program or approved by the EPA Administrator under 40 CFR 600.506-78 after the submission of the petition and before a final decision is rendered under § 527.14, the petitioner shall provide the NHTSA Administrator with that value and a revised fuel economy value for that vehicle configuration as modified under § 527.6(a)(2).

(c) All revisions required to be submitted under § 527.13(a) or (b) shall be submitted within thirty days of their availability to the petitioner. The petitioner shall show the effect on the petition of all revisions submitted.

#### **§ 527.14 Processing of petitions.**

(a) On receipt of a petition, the petition is evaluated for completeness. If a petition is found

not to contain the information required by this part, the petitioner is informed about the areas of insufficiency and advised that the petition will not receive further consideration until the necessary information is submitted.

(b) The NHTSA Administrator may request the petitioner to provide relevant information in addition to that required by this part: *Provided*, That such information either presently exists or can be obtained by the petitioner without undue hardship.

(c) (1) After the NHTSA Administrator concludes that a petition contains all the information required under this part, a notice of receipt of the petition is published in the *Federal Register*. The notice of receipt provides the following information:

- (i) That a petition has been received;
- (ii) The petitioner's identity;
- (iii) The reduction requested and a brief summary of the petitioner's rationale therefor;
- (iv) NHTSA's options for disposition of the petition;
- (v) The criteria to be applied in evaluating the petition;
- (vi) The location of copies of the petition available for public inspection; and
- (vii) An invitation of comments from the public and a deadline for submission of those comments.

(2) At the same time the notice of receipt is published, a copy of the petition is sent to the Federal agency responsible for administering the category of standards for which the Federal standards fuel economy reduction is sought and the comments of that agency are invited.

(d) The NHTSA Administrator requests the EPA Administrator to provide him with fuel economy values as they are approved by the EPA for the petitioner's passenger automobiles to be produced in the affected model year. These values replace the corresponding unapproved values in all calculations of average fuel economies.

(e) After all comments are received and evaluated, the NHTSA Administrator publishes a proposed decision or set of reasonable alternative decisions in the *Federal Register*. The notice specifies the reasons for each alternative, solicits written comment on the proposal, and establishes a date and place for a public hearing.

(f) After the conclusion of the public comment period and hearing specified in paragraph (e) of this section, the NHTSA Administrator publishes a final decision in the *Federal Register*. The final decision is based upon the petition, written and oral comments, and other available information. The final decision sets forth the grant or denial of the petition in accordance with section 502(d) (2) of the Act and the reasons for the decision. To the extent practicable, a final decision will be rendered within 180 days of receipt of a complete petition.

(g) If fuel economy values approved by the EPA Administrator cannot be obtained by the NHTSA Administrator for most model types of the petitioner's passenger automobiles to be produced in the affected model year, the NHTSA Administrator may rely on fuel economy values submitted pursuant to § 527.12(a) (2) and issue the notice described in paragraph (f) of this section as an interim determination. The notice, which is published in the *Federal Register*, contains the interim determination and the findings and analysis upon which such determination is based. The interim determination becomes final unless the NHTSA Administrator determines, after notice and opportunity for written and oral comment in accordance with this section, that significant disparities exist between the fuel economy values upon which the interim determination was based and fuel economy values subsequently approved by the EPA Administrator or submitted by the petitioner under § 527.13(b). Notice of the final determination with the adjusted reduction and of the reasons therefor is published in the *Federal Register*. For the purposes of this section, disparities between approved and unapproved data are deemed significant if, when all such disparities are taken together, the total average fuel economy calculate pursuant to § 527.8 would differ by 0.1 mile per gallon or more.

#### **§ 527.15 Public hearing.**

(a) Each hearing under § 527.14(e) is a legislative type hearing intended to provide interested persons with an opportunity to state their views or arguments, or to provide pertinent information concerning the proposed reduction.

(b) (1) The NHTSA Administrator appoints one or more employees of the Administration to serve

on the hearing panel and designates one of those employees to be the presiding official. Other Federal employees may be invited to serve on the panel as well.

(2) The presiding official may:

(i) Limit the length of oral presentations;

(ii) Exclude irrelevant or redundant material; and

(iii) Direct that corroborative material be submitted in writing rather than presented orally.

(c) Any person desiring to make an oral statement at the hearing should file a notice of such intention and, if practicable, five copies of his proposed statement with the NHTSA Administrator at least ten days prior to the hearing.

(d) (1) The NHTSA Administrator requires representatives of the petitioner able to address all matters raised in the petition to attend the hearing.

(2) The NHTSA Administrator may, on his own motion or at the request of a hearing participant, require any person who submits written comments to the NHTSA Administrator on the proposed reduction before the hearing or who has relevant information necessary to an informed decision in the proceeding to attend the hearing at any time before its conclusion.

(3) The Administrator requires any person who, under paragraph (d) (1) or (2) of this section attends the hearing, to respond to questions posed to him under paragraph (e) of this section.

(4) All testimony at the hearing is made under oath.

(e) Any individual appointed under paragraph (b) of this section may, on his own initiative or at the request of any interested person attending the hearing, propound questions to—

(1) Any person subject to paragraph (d) of this section.

(2) Any person who makes an oral presentation at the hearing.

(f) Interested persons attending the hearing may submit to the panel written questions to be propounded to persons identified in paragraph (e) of this section. Questions for a witness other than those identified in paragraph (d) (1) of this section may not be submitted to the panel after the completion of testimony by that witness.

(g) A verbatim transcript of the proceeding is made and copies are available from the reporter at the expense of any person requesting them.

**§ 527.16 Public Inspection of Information.**

Any person may inspect available information relevant to a petition under this part, including the petition and any supporting data, memoranda of informal meetings with the petitioner or any other interested persons, the transcript of the public hearing, and the notices regarding the petition, in the Docket Section of the Administration. Except

as provided in § 527.15(g) regarding transcripts of the public hearings, any person may obtain copies of the information available for inspection under this paragraph in accordance with the regulations of the Office of the Secretary of Transportation (49 CFR Part 7).

[FR Doc. 77-32887 Filed 11-11-77; 8:45 am]

Joan Claybrook  
*Administrator*

**42 F.R. 58938**

**November 14, 1977**



**PREAMBLE TO PART 529—MANUFACTURERS OF MULTISTAGE AUTOMOBILES****IDocket No. FE 77-02; Notice 2)**

The purpose of this notice is to establish a rule for determining, in cases where more than one person is the manufacturer of an automobile, which person is to be treated as the manufacturer for purposes of Title V of the Motor Vehicle Information and Cost Savings Act, as amended (15 U.S.C. 2001 et seq.), and its implementing regulations. Section 501(8) of the Act requires such rule to be issued. In most instances, the rule makes the incomplete automobile manufacturer responsible for meeting the Title V requirements, including those relating to automobile fuel economy standards, fuel economy labeling, and reporting.

Effective Date: July 28, 1977.

For further information, contact:

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**Supplementary Information:**

Section 501(8) of Title V requires the Administrator of the National Highway Traffic Safety Administration (NHTSA) to prescribe rules for determining, in cases where more than one person is the manufacturer of an automobile, which person is to be treated as the manufacturer of that automobile and thus responsible for compliance with the requirements of Title V. The principal requirements are those for complying with average fuel economy standards, submitting reports, and placing fuel economy labels on new automobiles.

The general outlines of a rule to implement section 501(8) were first discussed in the notice of proposed rulemaking (November 26, 1976, 41

FR 52087) on average fuel economy standards for model year 1979 nonpassenger automobiles. That notice stated that the agency contemplated issuing a proposal that would place compliance responsibilities on incomplete automobile manufacturers in most instances. A notice of proposed rulemaking (NPRM) dealing directly with multistage automobiles was published on February 14, 1977 (42 FR 9040). Consistent with the November 26 notice, the NPRM proposed that incomplete automobile manufacturers be made responsible in most instances for complying with the Title V requirements. The major exception to this assignment of responsibility was when a subsequent manufacturer, i.e., an intermediate or final-stage manufacturer, altered an automobile sufficiently to void the results of the fuel economy testing of the automobile by the incomplete automobile manufacturer. In such an instance, the subsequent manufacturer would become partially or totally responsible for complying with Title V.

A relatively minor exception was provided in the instance of a final-stage manufacturer that completed manufacture of a multistage automobile in a model year after the model year in which the incomplete automobile manufacturer finished its manufacturing operations on the automobile and that marketed the automobile as one manufactured in the latter model year. The NPRM provided that the final-stage manufacturer would assume responsibility for compliance in this circumstance also. Under either exception, the assumption of responsibility by the subsequent manufacturer would permit the incomplete automobile manufacturer to remove the automobile from its fleet of automobiles subject to the fuel economy standards.

Comments on the February 14, 1977 notice were received from American Motors Corporation (AMC), Chrysler, Ford, General Motors (GM)

and the Automobile Club of Southern California (Auto Club). All comments have been considered and the most significant ones are discussed below.

*Major differences between the proposed and final rules.* The most significant differences between the proposed rule and the final rule established by this notice are set forth below:

(1) The manufacturer which attaches the portion of the automobile body containing the windshield and front seat side windows to an incomplete automobile is made responsible for affixing the fuel economy label to that automobile.

(2) An incomplete automobile manufacturer is responsible for submitting a partial semi-annual report regarding its incomplete automobiles even if it ceases to be treated as their manufacturer for purposes of standards and labeling compliance. No report is required from intermediate or final-stage manufacturers under any circumstance.

(3) The final rule does not adopt the proposed requirement that a final-stage manufacturer which sells a multi-stage automobile as one manufactured in the model year in which it completed its manufacturing operations must assume responsibility for complying with Title V with respect to that automobile if that model year is subsequent to the model year in which the incomplete automobile manufacturer completed its manufacturing operations.

*Assignment of responsibility.* The NPRM assigned to incomplete automobile manufacturers the responsibility for complying with the requirements of Title V and its implementing regulations that affect multi-stage automobiles. Ford and Chrysler agreed with this assignment, noting that the incomplete automobile manufacturer is the manufacturer of a multi-stage automobile if it designs and builds the chassis and power train components that primarily determine the fuel economy of the completed automobile. Ford observed that incomplete automobile manufacturers generally have the engineering manpower and test facilities necessary to perform fuel economy development and testing, while intermediate and final-stage manufacturers seldom have these resources. Neither AMC nor GM objected to this assignment.

Ford and GM also stated that they did not object to the proposed assignment of responsibility because including their incomplete automobiles in their fleets for standards compliance purposes would have a negligible effect on their average fuel economy. This was said to be true even if the fuel economy of their incomplete automobiles were based upon "worst case" testing.

Ford and Chrysler did, however, limit their agreement with the proposed assignment of responsibility to those automobiles which had been completed by the subsequent manufacturers within the specifications of the incomplete automobile manufacturer. Ford and Chrysler urged, as the agency had proposed, that if an intermediate or final-stage manufacturer exceeds the maximum curb weight or maximum frontal area specified by the incomplete automobile manufacturer, thus invalidating the fuel economy values determined by the incomplete automobile manufacturer, that subsequent manufacturer should become responsible for that automobile under Title V.

*Compliance with average fuel economy standards.* The NPRM suggested alternative methods of testing to determine the fuel economy of multi-stage automobiles. It was noted that the practice of "worst case" testing, while appropriate for emissions certification, might not be suited for use under Title V. For emissions standard enforcement purposes, the actual emissions levels are not too important. What is important is whether they exceed the maximum specified in the emissions standards. However, the actual tested level of performance is important under the fuel economy program. The fuel economy of each model type produced by a manufacturer is used to calculate whether and to what extent the average fuel economy of the manufacturer has fallen below or exceeded the prescribed minimum level of average fuel economy. The amount of civil penalties and credits against civil penalties are determined by the level of shortfall or excess, respectively. The NPRM noted that if an incomplete automobile manufacturer were required to determine the fuel economy of its fleet based partially on "worst case" tested incomplete automobiles, a manufacturer of a substantial number of those automobiles could be at a disadvantage relative to a manufacturer of only



single-stage automobiles in trying to comply with the average fuel economy standards.

The comments suggest that there would be no such disadvantage. GM said that it preferred "worst case" testing because that approach minimized GM's testing burden. Ford expressed no preference, pointing out that the use of "best case" testing instead of "worst case" testing or vice versa would make no practical difference in the resulting average fuel economy. Ford, GM, and Chrysler all noted that the sale of incomplete automobiles was such a small proportion of their total sales that the effect of the incomplete automobiles on their average fuel economy was negligible. Ford stated that determining more representative fuel economies would require additional testing. In that company's view, that additional testing was not justified because of the insufficient effect on average fuel economy.

The NPRM also noted that "worst case" testing might be inappropriate for determining fuel economy because the fuel economy value appearing on the label would then be the lowest possible value for that automobile. That is, the value would be that for an automobile completed to the maximum permissible curb weight and frontal area specified by the incomplete automobile manufacturer. Thus, a final-stage manufacturer that completes an automobile with a curb weight and frontal area significantly less than the maxima would not be rewarded by a commensurately higher fuel economy value. Thus, there would be reduced incentive for a final-stage manufacturer to attempt to minimize curb weight and frontal area. Further, in competing with manufacturers of single-stage vehicles having a comparable size and function, the final-stage manufacturer might be at a disadvantage due to the comparatively low fuel economy that its automobiles appear to be capable of achieving. No final-stage manufacturer commented on this or any other portion of the proposed rule.

Ford, GM, and Chrysler opposed additional testing to determine the fuel economy of multistage automobiles more accurately. They stated that the cost and burden of additional testing could cause an incomplete automobile manufacturer to eliminate or sharply curtail production of those automobiles. In response to a question posed in the NPRM, the costs stated by the

manufacturers for retesting an automobile after having tested it and then reset the road load would range from \$200 to \$400.

Chrysler stated that it believed that the fuel economy values for multistage automobiles should represent as accurately as possible the fuel economy that would result from testing the completed automobile. For the reasons stated in the immediately preceding paragraph, that company said that there is no cost-effective way of accurately establishing the fuel economy of completed multistage automobiles through testing. However, Chrysler indicated that the cost of conducting additional fuel economy tests should not prevent developing a best estimate of the fuel economy that could be achieved by the completed multistage automobiles. Chrysler suggested a method that might be used for determining a best estimate of the fuel economy for those automobiles.

Under Chrysler's suggested method, the incomplete automobile would be tested in its "worst case" condition. If the curb weight and frontal area of the completed automobile incorporating the incomplete automobile are less than the maxima specified for the incomplete automobile, then, according to Chrysler, it should be possible to estimate mathematically the fuel economy of the incomplete automobile using the fuel economy values for the completed automobile and incomplete automobile.

Ford and GM responded negatively to the suggestion in the NPRM that a more accurate determination of the fuel economy of multistage automobiles might be possible through improved communication between the incomplete and final-stage manufacturers. These commenters stated that there was no practicable means by which they could learn about the final specifications of the incomplete automobiles that they manufacture. According to these commenters, incomplete automobiles are sold to more than 1,000 different intermediate and final-stage manufacturers and converted into as many as 25 different types of automobiles, with the final-stage manufacturer having substantial latitude regarding body style and shape and options.

All of the above comments regarding methods for developing fuel economy values have been referred to the Environmental Protection Agency

(EPA). The EPA has the authority under section 503 of Title V for specifying the procedures for determining fuel economy.

*Compliance with labeling requirements.* Chrysler, Ford, and GM recommended that the fuel economy label values for multistage automobiles be derived from the corresponding completed, single-stage automobiles manufactured by the incomplete automobile manufacturer. This comment, like the other comments on methods for developing fuel economy values, has been referred to EPA for consideration.

Chrysler, Ford, and GM also commented that they were presently complying with the labeling requirements in the same manner as for single-stage automobiles. Ford noted that most fuel economy labels for incomplete automobiles were attached to the windshields or side windows. For incomplete automobiles sold with no body, that company recommended that the labels be enclosed with the emissions certification and safety compliance information furnished by the incomplete automobile manufacturer to subsequent manufacturers. The NHTSA agrees with this recommendation. The rule has been revised to provide that while the incomplete automobile manufacturer would be responsible for preparing the fuel economy label for those incomplete automobiles, the responsibility for affixing the label would be placed on the manufacturer that adds the body to the automobile.

Ford commented that the NPRM did not completely and appropriately assign responsibility for the fuel economy labels remaining affixed to the multi-stage automobiles. That company stated that when the incomplete automobile manufacturer affixes the label to an incomplete automobile, all subsequent manufacturers of the automobile must assume responsibility and be held accountable for maintaining the label. The NHTSA agrees that there was incomplete assignment of this responsibility. The rule has been revised to ensure an unbroken chain of accountability for the fuel economy labels remaining attached. If a manufacturer receives an incomplete automobile that has the portion of the body including the windshield and front seat side windows and therefore should be labeled, but does not have a fuel economy label, the manufacturer is required to attach a label identi-

cal to the one that should be on the automobile. The document containing the curb weight and frontal area maxima and the addenda, if any, to that document will identify the previous manufacturer of that automobile which should have prepared the missing label. Similarly, if a fuel economy label is removed from an incomplete automobile while it is in the possession of one of its manufacturers, that manufacturer must reattach that label or obtain an identical one from the manufacturer which prepared the removed label. A manufacturer is not required to replace a label that is removed in the circumstances of the immediately preceding sentence if the manufacturer has exceeded one of the maxima and must prepare a new label with new fuel economy values.

*Compliance with reporting requirements.* The NPRM assigned reporting responsibilities in the same general manner as standards compliance and labeling responsibilities, but stated that the manner of assigning reporting responsibilities would be addressed in greater detail in a subsequent notice of proposed rulemaking dealing solely with reporting requirements. That subsequent notice was published April 11, 1977, 42 FR 18867. The question of multistage manufacturers was addressed at 42 FR 18869. The reporting NPRM provided that even when an intermediate or final-stage manufacturer assumed full responsibility for the compliance of an automobile with the fuel economy standards, it would assume only partial responsibility for compliance with the reporting requirements. In commenting on the multistage NPRM, Chrysler, Ford, and GM stated that an intermediate or final-stage manufacturer which exceeds the curb weight and frontal area maxima should assume the reporting responsibilities. However, in commenting on the subsequent reporting NPRM, none of these manufacturers objected to a proposal that the reporting responsibilities be divided between the incomplete automobile manufacturer and one of the subsequent manufacturers when the latter manufacturer exceeds one of the maxima.

After considering these comments and the comments discussed above about the degree of communication between the incomplete automobile manufacturers and subsequent manufacturers, the NHTSA has decided to make several relatively

minor changes in the reporting responsibilities described in the reporting NPRM. First, the incomplete automobile manufacturer would not be required to provide information relating to certain aspects of completed multistage automobiles manufactured from its incomplete automobiles. These aspects would include items such as number of designated seating positions, body style, and passenger and cargo carrying volumes. Based on the comments regarding the lack of communications between the incomplete automobile manufacturers and the subsequent manufacturers, information of this type would apparently not be available to the incomplete automobile manufacturers. Second, intermediate and final-stage manufacturers are not required to do any reporting under any circumstances, including any circumstance in which an intermediate or final-stage manufacturer exceeds the maximum frontal area or curb weight. Given the agency's expectation that intermediate and final-stage manufacturers will rarely exceed either of the maxima, these manufacturers were unlikely to have been required to submit reports in any event. For the same reason, incomplete automobile manufacturers are unlikely to be required to submit more information about their incomplete automobiles than they would have been required to do under the reporting NPRM. Further, exceeding the maxima would not affect most of the information that the incomplete automobile manufacturer is required to submit.

*Model year determination.* The NPRM provided that the final-stage manufacturer would have two options regarding the designation of model year of a multistage automobile. The manufacturer could choose to offer for sale or sell the automobile as one manufactured in either the model year in which the incomplete automobile manufacturer completed its manufacturing operations or the model year in which that final-stage manufacturer completed its manufacturing operations. It was proposed that if the final-stage manufacturer chose to offer the automobile for sale as one manufactured in the model year in which the incomplete automobile manufacturer completed its manufacturing operations, and if no subsequent manufacturer had exceeded the curb weight and frontal area maxima, the final-stage manufacturer could rely on the fuel econ-

omy testing and label of the incomplete automobile manufacturer. If, however, the final-stage manufacturer completed the automobile in a model year after the incomplete automobile manufacturer completed its manufacturing operations and if the final-stage manufacturer elected to offer the automobile for sale as one manufactured in the latter model year, the final-stage manufacturer would become the manufacturer of the automobile for the purposes of Title V and would be required to conduct fuel economy testing and to comply with the fuel economy standard and labeling requirements for that later model year.

Chrysler initially commented that the model year of a multistage automobile should be the model year in which the incomplete automobile manufacturer completed its manufacturing operations. This comment was qualified in a subsequent meeting and telephone conversation with the NHTSA which were summarized in memoranda placed in the docket. In that meeting and conversation, Chrysler stated that its suggestion regarding model year was merely meant to indicate that a multistage automobile should be subject to the average fuel economy standard for the model year in which the incomplete automobile manufacturer completes its manufacturing operations on the automobile unless a subsequent manufacturer exceeded either the maximum frontal area or maximum curb weight in a subsequent model year. With respect to the marketing of completed automobiles, Chrysler intended to suggest that the final-stage manufacturer have the option of marketing the completed multistage automobile either as one manufactured in the model year in which the manufacturer for standards compliance purposes completed its manufacturing operations or as one manufactured in the model year in which the final-stage manufacturer completed its manufacturing operations. Chrysler went further to urge that the final-stage manufacturer's election of the latter model year not cause that manufacturer to become the manufacturer of that automobile for the purposes of Title V and to be compelled to comply with the applicable fuel economy standard for that model year. Chrysler's comments stemmed from a concern that the NPRM would have motivated final-stage manufacturers to order all of their

incomplete automobiles for delivery early in each model year to avoid having to market out-of-date automobiles. That company stated that it had discouraged such one-time ordering because large block ordering was disruptive of its efforts to spread orders evenly over each model year.

The NHTSA believes that the Chrysler comments have merit. To avoid unnecessarily burdening both the incomplete automobile manufacturers and final-stage manufacturers, the rule has been revised to eliminate the model-year-determination provision. The elimination of that provision leaves the manufacturer free under Part 529 to designate the model year of its automobiles as it desires. However, the fuel economy label will bear the model year in which the manufacturer for purposes of standard and labeling compliance completed its manufacturing operations. Further, other law may limit the discretion of the manufacturer in designating a model year. See the discussion below of the Auto Club comment.

The elimination of the provision on model year determination makes it unnecessary to respond in detail to an objection by GM to that provision. That company interpreted that provision as meaning that any multistage automobile that a final-stage manufacturer completes after the model year in which the incomplete automobile manufacturer completes its manufacturing operations would be subtracted from the incomplete automobile manufacturer's fleet for that earlier model year. That interpretation was wrong in several respects. However, the essential point is that the model year in which a multistage automobile is completed has no effect on the determination of which automobiles are to be counted as being in the incomplete automobile manufacturer's fleet.

The Auto Club objected to the model-year-determination proposal on the basis that it conflicted with California law. Section 11713.5 of the California Vehicle Code prohibits a dealer or manufacturer from offering for sale a motor vehicle if the vehicle is represented to be of a model year different from the model year designated at the time of manufacture or assembly. The Auto Club stated that "if the incomplete automobile manufacturer, who is the manufacturer for purposes of Federal law, designates a model year for the incomplete automobile, then any final-stage

manufacturer licensed to do business in California who attempts to sell that automobile under subdivision (a) of Section 529.7 would be in violation of (the California Vehicle Code)."

The deletion of the model-year-determination provision eliminates the problem perceived by the Auto Club. The provision was eliminated in response to the Chrysler comment discussed above and to avoid the possibility of unnecessarily interfering with California law. The agency notes that the provision might not have caused any interference. The determination under Part 529 of which manufacturer is to be treated as the manufacturer of a multistage automobile is controlling for the limited purposes of Title V only. Under the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1391 *et seq.*) and implementing regulation in 49 CFR Part 568, the final-stage manufacturer is treated as the manufacturer. These differing determinations of who is to be treated as a manufacturer to serve different statutory purposes do not control the determination of who is a manufacturer under California law. California, not Federal, law must be interpreted to determine which of the manufacturers of a multistage automobile is the manufacturer of the automobile for the purposes of section 11713.5 of the California Vehicle Code.

*Additional comments.* Ford suggested that the proposal be modified to include express reference to importers of incomplete automobiles in the definition of "incomplete automobile manufacturer". This agency does not believe that this additional language is necessary. The term "manufacture" is defined in section 501 to include the importation of automobiles into the customs territory of the United States.

Chrysler recommended that the NHTSA consider exempting an incomplete automobile manufacturer from any responsibility under Title V with respect to its complete automobiles if those automobiles constitute less than 2 percent of the total number of automobiles that the manufacturer produces in that class. This recommendation was based upon Chrysler's arguments about the negligible effects of those incomplete automobiles on the average fuel economy of the manufacturer. There is no authority under Title V for adopting Chrysler's suggestion. Exemption from standard compliance responsibilities are

available only to low volume manufacturers of passenger automobiles. Most multistage automobiles are nonpassenger automobiles. Further, the exemptions are not complete. Alternative standards must be established for exempted manufacturers.

GM recommended that the multistage automobile rule be drafted to permit a final-stage manufacturer which manufactures less than 10,000 automobiles per year to petition for an exemption under section 502(c) of Title V. That company stated that when an exemption is granted for multistage automobiles, their incomplete automobile manufacturer should not have to include any of them in its fleet. Section 502(c) provides for the exemption of manufacturers which manufacture less than 10,000 passenger automobiles per year. As noted above, the exemptions can apply to passenger automobiles only and can be granted only if an alternative standard is established for the exempted passenger automobiles. The eligibility of a final-stage manufacturer to apply for an exemption depends upon the number of passenger automobiles it produces, assembles, or imports and upon whether it is treated under this rule as the manufacturer of those automobiles. If the final-stage manufacturer produces a multistage automobile but is not treated as its manufacturer, that final-stage manufacturer may not obtain its exemption under section 502(c). An exemption may be granted to a manufacturer for automobiles under Title V only if the manufac-

turer can demonstrate that its maximum feasible average fuel economy is less than the level of average fuel economy specified in the standard generally applicable to all manufacturers. An automobile for whose fuel economy the final-stage manufacturer has no responsibility has no bearing upon its maximum feasible average. If the final-stage manufacturer produces a multistage automobile and is treated as its manufacturer, that automobile is excluded by this rule from the incomplete automobile manufacturer's fleet irrespective of any exemption. Thus, GM's comment states no basis for changing the rule.

In light of the foregoing, Title 49, Code of Federal Regulations, is amended by adding a new Part 529, Manufacturers of Multistage Automobiles, . . .

The program official and lawyer principally responsible for the development of this rule are Roy Dennison and Kathy DeMeter, respectively. Issued in Washington, D.C. on July 21, 1977.

Joan Claybrook  
National Highway Traffic Safety  
Administrator

**42 F.R. 38369**  
**July 28, 1977**



## PART 529—MANUFACTURERS OF MULTISTAGE AUTOMOBILES

### Sec.

#### 529.1 Scope and purpose.

#### 529.2 Applicability.

#### 529.3 Definitions.

#### 529.4 Requirements for incomplete automobile manufacturers.

#### 529.5 Requirements for intermediate manufacturers.

#### 529.6 Requirements for final-stage manufacturers.

#### 529.7 Determination of model year.

AUTHORITY: Sec. 301, Pub. L. 94-163, 80 Stat. 901 (15 U.S.C. 2001), delegation of authority at 41 FR 25015, June 22, 1976.

#### § 529.1 Scope and purpose.

This part determines, in cases where more than one person is the manufacturer of an automobile, which person is to be treated as the manufacturer for purposes of compliance with Title V of the Motor Vehicle Information and Cost Savings Act, as amended (15 U.S.C. 2001 et seq.), and rules issued thereunder.

#### § 529.2 Applicability.

This part applies to incomplete automobile manufacturers, intermediate manufacturers, and final-stage manufacturers of automobiles that are manufactured in two or more stages.

#### § 529.3 Definitions.

(a) *Statutory terms.* (1) The term "automobile" is used as defined in section 501 of the Act and in accordance with the determinations in 49 CFR Part 523.

(2) The terms "manufacture," "manufacturer," and "fuel economy" are used as defined in section 501 of the Act.

(b) *Other terms.* (1) "Act" means the Motor Vehicle Information and Cost Savings Act (Pub. L. 92-513), as amended by the Energy Policy and Conservation Act (Pub. L. 94-163).

(2) "Completed automobile" means an automobile that requires no further manufacturing operations to perform its intended function, other than the addition of readily attachable components, such as mirrors or tire and rim assemblies, or minor finishing operations such as painting.

(3) "Curb weight" is defined the same as "vehicle curb weight" in 40 CFR Part 86.

(4) "Final-stage manufacturer" means a person who performs such manufacturing operations on an incomplete automobile that it becomes a completed automobile.

(5) "Frontal area" is used as defined in 40 CFR § 86.079-2.

(6) "Incomplete automobile" means an assemblage consisting, as a minimum, of frame and chassis structure, power train, steering system, suspension system, and braking system to the extent that those systems are to be part of the completed automobile, that requires further manufacturing operations, other than the addition of readily attachable components, such as mirrors or tire and rim assemblies, or minor finishing operations such as painting, to become a completed automobile.

(7) "Incomplete automobile manufacturer" means a person who manufactures an incomplete automobile by assembling components none of which, taken separately, constitute a complete automobile.

(8) "Intermediate manufacturer" means a person, other than the incomplete automobile manufacturer or the final-stage manufacturer, who performs manufacturing operations on an incomplete automobile.

#### § 529.4 Requirements for incomplete automobile manufacturers.

(a) Except as provided in paragraph (c) of this section § 529.5 and § 529.6, each incomplete automobile manufacturer is considered, with respect to multistage automobiles incorporating its

incomplete automobiles, the manufacturer of the multistage automobiles for purposes of the requirements of Title V and rules issued thereunder.

(b) Each incomplete automobile manufacturer shall furnish with each of its incomplete automobiles, when it is delivered to the subsequent manufacturer, (1) a document that contains the following information—

(i) Name and mailing address of the incomplete automobile manufacturer.

(ii) Month and year during which the incomplete automobile manufacturer performed its last manufacturing operation on the incomplete automobile.

(iii) Identification of the incomplete automobile or group of incomplete automobiles to which the document applies. The identification may be by serial number or otherwise, but it must be sufficient to enable a subsequent manufacturer to ascertain positively that the document applies to a particular incomplete automobile even if the document is not attached to that automobile.

(iv) Fuel economy values determined by the incomplete automobile manufacturer for the automobile in accordance with 40 CFR Part 600 and a statement that a fuel economy label containing those values has been prepared in accordance with Environmental Protection Agency regulation by the manufacturer identified in the document.

(v) Maximum curb weight that may not be exceeded by a subsequent manufacturer without invalidating the fuel economy values determined by the incomplete automobile manufacturer.

(vi) Maximum frontal area that may not be exceeded by a subsequent manufacturer without invalidating the fuel economy values determined by the incomplete automobile manufacturer.

(vii) Whether the fuel economy values have been computed with the road load horsepower set to take into account the presence of air conditioning.

(2) A fuel economy label conforming with 40 CFR Part 600.

(c)(1) The incomplete automobile manufacturer shall either attach the document specified in paragraph (b)(1) of this section to the incomplete automobile in such a manner that it will not be inadvertently detached or send that document directly to the subsequent manufacturer to which that automobile is delivered.

(2)(i) If the incomplete automobile manufacturer places the portion of the body including the windshield and front seat side windows on the incomplete automobile, the manufacturer shall attach the fuel economy label specified in paragraph (b)(2) of this section to that automobile in accordance with 40 CFR Part 600. If the incomplete automobile manufacturer does not place that portion of the body on the incomplete automobile, that manufacturer shall send that label directly to the subsequent manufacturer to which that automobile is delivered.

(ii) Upon request by an intermediate or final-stage manufacturer for a copy of a fuel economy label that is required by paragraph (b)(2) to have been prepared by the incomplete automobile manufacturer for one of its incomplete automobiles, identified by the requesting manufacturer in the same fashion as in the document specified in paragraph (b)(1) of this section, the incomplete automobile manufacturer shall send that manufacturer a copy of the label.

#### **§ 529.5 Requirements for intermediate manufacturers.**

(a) Except as provided in paragraph (d) of this section and in § 529.6, each intermediate manufacturer whose manufacturing operations on an incomplete automobile cause it to exceed the maximum curb weight or maximum frontal area set forth in the document furnished it by the incomplete automobile manufacturer under § 529.4(c)(1) or by a previous intermediate manufacturer under paragraph (b) of this section, as appropriate, is considered the manufacturer of the multistage automobile manufactured from that automobile for the purpose of the requirements of Title V and rules issued thereunder, other than that in Part 537, Fuel Economy Reports.

(b) Each intermediate manufacturer of an incomplete automobile shall furnish, in the manner specified in § 529.4(c), to the subsequent manu-



factorer of that automobile the document required by § 529.4(b) regarding that automobile. If any of the changes in the automobile made by the intermediate manufacturer affect the validity of the fuel economy values or other statements in the document or any addendum attached to the document by a previous manufacturer shall furnish an addendum to the document that contains its name and mailing address and an indication of all changes that should be made in the document to reflect changes that it made in the automobile.

(c) Each intermediate manufacturer that is required by paragraph (b) of this section to furnish an addendum to a document required by § 529.4(b) shall, within 10 days after completing its manufacturing operations, send a copy of the document and addendum to the Administrator of the Environmental Protection Agency and to the manufacturer previously considered under this part to be the manufacturer of the automobile.

(d)(1) If the intermediate manufacturer's manufacturing operations on an incomplete automobile cause it to exceed the maximum curb weight or maximum frontal area set forth in the document furnished it by the incomplete automobile manufacturer under § 529.4(c)(1) or a previous intermediate manufacturer under paragraph (b) of this section, as appropriate, that manufacturer shall prepare a new fuel economy label for that automobile in accordance with 40 CFR Part 600.

(2) If neither the intermediate manufacturer of an incomplete automobile nor any previous manufacturer of that automobile has placed the portion of the body including the windshield and front seat side windows on that automobile, the intermediate manufacturer shall send the fuel economy label furnished it by the incomplete automobile manufacturer under § 529.4(c)(2)(i) or a previous intermediate manufacturer under paragraph (d)(2) of this section or prepared by it under paragraph (d)(1) of this section, as appropriate, directly to the subsequent manufacturer to which that automobile is delivered.

(3) If the intermediate manufacturer places the portion of the body including the windshield and front seat side windows on the incomplete

automobile, that manufacturer shall attach the fuel economy label furnished it under § 529.4(c)(i) or paragraph (d)(2) of this section or the fuel economy label prepared by it under paragraph (d)(1) of this section, as appropriate, to that automobile in accordance with 40 CFR Part 600.

(4) The intermediate manufacturer shall attach to the incomplete automobile in accordance with 40 CFR Part 600 a fuel economy label identical to the label that is required under this part to have been prepared by the manufacturer considered under this part to be the manufacturer of that automobile if:

(i) The portion of the body including the windshield and front seat side windows was added to the incomplete automobile by a previous manufacturer;

(ii) The intermediate manufacturer's manufacturing operations do not cause that automobile to exceed either of the maxima specified in paragraph (d)(1) of this section; and

(iii) That label is not on that automobile when received by the intermediate manufacturer or is removed from that automobile while it is in the possession of that manufacturer.

(5) Upon request by a subsequent intermediate manufacturer or by a final-stage manufacturer for a copy of a fuel economy label prepared by the intermediate manufacturer under paragraph (d)(1) of this section for one of its incomplete automobiles, identified by the requesting manufacturer in the same fashion as in the document specified in § 529.4(b)(1), the intermediate manufacturer shall send that manufacturer a copy of that label.

#### **§ 529.6 Requirements for final-stage manufacturers.**

(a) Except as provided in paragraph (c) of this section, each final-stage manufacturer whose manufacturing operations on an incomplete automobile cause the completed automobile to exceed the maximum curb weight or maximum frontal area set forth in the document specified in § 529.4(b) and furnished it by the incomplete automobile manufacturer under § 529.4(c)(1) or by the last intermediate manufacturer under § 529.5(b), as appropriate, is considered the manufacturer of the completed automobile for the purpose of

the requirements of Title V and rules issued thereunder, other than those in Part 537, Fuel Economy Reports.

(b) Each final-stage manufacturer that becomes the manufacturer of a multistage automobile under paragraph (a) of this section shall, within 10 days after completing its manufacturing operations on that automobile, send written notification of its exceeding the curb weight or frontal area maximum to the Administrator of the Environmental Protection Agency and to the manufacturer previously considered under this part to be the manufacturer of the automobile.

(c)(1) If the final-stage manufacturer becomes the manufacturer of a multistage automobile under paragraph (a)(1) of this section, that manufacturer shall prepare a new fuel economy label for that automobile in accordance with 40 CFR part 600.

(2) If the final-stage manufacturer places the portion of the body including the windshield and front seat side windows on the incomplete automobile, that manufacturer shall attach the fuel economy label furnished by the incomplete automobile manufacturer under § 529.4(c)(2) or by the last intermediate manufacturer under

§ 529.5(d)(2) or the fuel economy label prepared by the final-stage manufacturer under paragraph (c)(1) of this section, as appropriate, to that automobile in accordance with 40 CFR Part 600.

(3) The final-stage manufacturer shall attach to the completed automobile in accordance with 40 CFR Part 600 a fuel economy label identical to the label that is required under this part to have been prepared by the manufacturer considered under this part to be the manufacturer of that automobile if:

(i) The portion of the body including the windshield and front seat side windows was added to the completed automobile by a previous manufacturer;

(ii) The final-stage manufacturer's manufacturing operations do not cause that automobile to exceed either of the maxima specified in paragraph (c)(1) of this section; and

(iii) That fuel economy label is not on that automobile when received by that manufacturer or is removed from that automobile while it is in the possession of that manufacturer.

**42 F.R. 38369  
July 28, 1977**

## PREAMBLE TO PART 531—PASSENGER AVERAGE FUEL ECONOMY STANDARDS

(Docket No. FE 76-1; Notice 5)

This notice establishes average fuel economy standards for passenger automobiles manufactured in model years 1981-84. These standards are 22 miles per gallon (mpg) for passenger automobiles produced in model year 1981, 24 mpg for 1982, 26 mpg for 1983, and 27 mpg for 1984. These standards are promulgated to satisfy the requirements of section 502(a)(3) of the Motor Vehicle Information and Cost Savings Act, as amended. The establishment of these standards is intended to result in the consumption of approximately 41 billion fewer gallons of gasoline (worth \$19 billion, with gasoline valued at 65¢ per gallon) over the life of the vehicles manufactured in 1981-84 than would be the case if the average fuel economy of new passenger automobiles remained at the level of the 1980 fuel economy standard, 20.0 mpg.

Dates: These standards will apply to the model years 1981 through 1984.

For further information contact:

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Supplementary Information:

### I. Background information.

Title V of the Motor Vehicle Information and Cost Savings Act, as amended (hereafter, "the Act"), establishes average fuel economy standards applicable to manufacturers of passenger automobiles. Title V was added to the Act by Part A of Title III of the Energy Policy and Conservation Act (hereafter, "the Energy Act"). The term "passenger automobiles" generally includes four-wheeled vehicles manufactured primarily for on-road use and for the transportation

of ten or fewer passengers, e.g., sedans, coupes, and station wagons. See 15 U.S.C. 2001(1) and (2), and 41 FR 55368, December 20, 1976. Compliance of a manufacturer with these standards is to be determined by computing the production-weighted fuel economy average of the various model types of passenger automobiles manufactured by the manufacturer in a model year and comparing that number to the fuel economy standard. Fuel economy values for the various model types of passenger automobiles are determined in accordance with procedures established by the Environmental Protection Agency. See 41 FR 38675, September 10, 1976. The Act specifies fuel economy standards of 18, 19, and 20 mpg for model years 1978, 1979, and 1980, respectively, and 27.5 mpg for 1985 and thereafter. Fuel economy standards for model years 1981-84 are to be established administratively by the Secretary of Transportation not later than July 1, 1977. See section 502(a)(3) of the Act. This notice establishes the latter standards.

Section 502(a)(3) imposes two substantive requirements for the 1981-84 standards. That section requires that the standards for each of those model years be set at a level which (1) is the maximum feasible average fuel economy level and (2) will result in steady progress toward meeting the 1985 standard. The statutorily-established standard for 1985 and thereafter of 27.5 mpg may be adjusted either upward or downward by the Secretary of Transportation if he determines that the present standard does not reflect the maximum feasible average fuel economy level for those years. If the Secretary amends the standard for any model year to a level above 27.5 mpg or below 26.0 mpg, that amendment is subject to a veto by either House of the Congress. See section 502(a)(4). In determining maximum feasible average fuel economy, the Secretary must, under section

502(c) of the Act, consider four factors: technological feasibility, economic practicability; the effect of other Federal motor vehicle standards on fuel economy; and the need of the nation to conserve energy.

Responsibility for the automotive fuel economy program was delegated by the Secretary of Transportation to the Administrator of the National Highway Traffic Safety Administration (NHTSA) in 41 FR 25015, June 22, 1976. Rulemaking under section 502(a)(3) was initiated on September 23, 1976, when the NHTSA published an advance notice of proposed rulemaking (ANPRM). See 41 FR 41713. The ANPRM solicited specific information on all subjects relevant to the establishment of 1981-84 standards, with particular emphasis on the four considerations relating to the determination of maximum feasible average fuel economy levels set forth above. Six automobile manufacturers, two industry trade associations, one state and one federal energy agency, and one private individual provided responses to the ANPRM. These responses were considered in developing the notice of proposed rulemaking and supporting materials discussed below. To encourage the representation in the proceeding of interests and points of view which have traditionally been underrepresented due to the high costs of participation, NHTSA invited applications for financial assistance from individuals and groups which were financially unable to participate. See 42 FR 5178, January 27, 1977. Five public interest organizations received funding in this first action under the Department's demonstration program for financial assistance, which was announced in 42 FR 2864, January 13, 1977.

On February 22, 1977, a notice of proposed rulemaking and public hearing (NPRM) was published in 42 FR 10321. This notice discussed in additional detail the issues which were deemed relevant to the establishment of 1981-84 standards. The notice also announced the availability of a document titled "Data and Analysis for 1981-84 Passenger Automobile Fuel Economy Standards" (hereafter, the "Support Document"), which set forth the methodology and data on which fuel economy improvement projections would be based. This document was released on March 1, 1977. As noted in the NPRM,

the Support Document projected potentially achievable fuel economy levels which would result in steady progress toward meeting 27.5 mpg by 1985. These projections were based on the use of a limited class of technological improvements, and were therefore not projections of "maximum feasible average fuel economy levels." See 42 FR 10322, and Tr-I, p. 87 (remarks of Dr. Robert Sawyer).<sup>1</sup> However, such projections were useful for demonstrating that average fuel economy levels in the range to be considered in this proceeding were achievable.

The NPRM also announced a public hearing to commence on March 22, 1977, to permit interested parties to make oral presentations in addition to their opportunity to make written submissions. The hearing was not required by the Act, but was held at the discretion of the Secretary to augment the opportunity for public participation in this important informal rulemaking action. The Secretary of Transportation presided over the first day of the hearing, together with the Administrator of the Federal Energy Administration and the Deputy Administrator of the Environmental Protection Agency. Representatives of the latter agencies also participated throughout the remainder of the hearing. Eleven companies, groups and individuals made presentations at the hearing, including five passenger automobile companies and four funded public interest groups. The NPRM established a deadline of April 7, 1977, for the submission of written comments on the NPRM and the Support Document and on issues raised at the hearing. This deadline was extended on April 1, 1977, to April 12, 1977, at the request of Chrysler Corporation,<sup>2</sup> to allow additional time for the pre-

<sup>1</sup> The abbreviation "Tr" refers to the transcript of the fuel economy public hearing, copies of which are in the fuel economy docket. The roman numeral following the abbreviation refers to the transcript volume, "I" being the Tuesday, March 22 volume, "II" being the March 23 volume, and "III" being the March 24 volume. References to the transcript and other materials are intended as an aid to persons dealing with the voluminous materials in this rulemaking, and may not be exhaustive.

<sup>2</sup> DN-25. The abbreviation "DN" followed by a number refers to the docket number of material in NHTSA docket FE 76-01-NO3. This docket is located in Room 5108 of the Nassif Building, 400 Seventh Street, S.W., Washington, D.C., and is open to the public during normal business hours.

paration of responses to questions for which the hearing panel received no answer at the hearing. See 42 FR 18413, April 7, 1977. To assure fully responsive answers to certain important questions asked at the public hearing, "special orders" were issued on April 1, 1977, under section 505(b)(1) of the Act to the five automobile companies which participated in the hearing. DN-7. In addition, on April 21, similar special orders were issued to certain foreign passenger automobile manufacturers to obtain information on their capabilities to achieve high levels of average fuel economy. DN-28. On April 20, special orders were sent to five automobile equipment and material suppliers to obtain information on the fuel economy improvement potential and cost associated with the equipment and material they could supply to passenger automobile manufacturers in the 1981-84 period. DN-27. An additional special order was issued on May 19 to the recipients of the April 1 order to obtain further information on the impact of the Administration's proposed emission standards and energy plan on fuel economy. DN-35. All comments and responses have been considered and the most significant are discussed below.

Material contained in the Support Document, as supplemented or revised in light of material submitted in response to the NPRM and special orders, together with other relevant material, were used in the development of the standards promulgated herein. More detailed information including more extensive data and analyses used in the development of these standards is contained in a Rulemaking Support Paper (hereafter, the "RSP"), copies of which will soon be available from the Office of Automotive Fuel Economy (NFE-01), National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 or by calling 202-472-3906. The data and analyses in that paper appear to justify average fuel economy standards more stringent than 27.5 mpg by 1985. However, the scope of notice limits this final rule to standards for 1981-84. Thus, the statutory standard of 27.5 mpg for 1985 and thereafter cannot be changed by this rulemaking. Further, standards of 27.5 mpg or higher cannot be set for any year before 1985 so long as the 1985 standard remains at 27.5 mpg. This second limitation results from

the statutory requirement that the 1981-84 standards lead to steady progress toward the 1985 standard.

It should be noted that these limitations on the 1981-85 standards are only temporary. Shortly, the Department intends to exercise its authority under section 502(a)(1) of the Act to initiate rulemaking to increase the average fuel economy standards for 1985 and thereafter. At that time, the relation between the new standard for 1985 and the standards for 1981-84 established herein will be considered. A further discussion of this topic is contained in section XII below.

## II. Methodology on which standards are based.

### A. *The methodological approach.*

In view of the statutory requirement for maximum feasible standards and of the nation's need to conserve energy, the Department has attempted to set fuel economy standards at the most stringent possible level, consistent with other statutory requirements. At least two approaches exist for determining such maximum levels. One approach is to evaluate the most fuel efficient passenger automobiles produced today in each of the various market classes of automobiles, and to use that evaluation to set improvement targets for all other automobiles in the same class. This approach has the advantage of providing a clear basis for evaluating current technological capabilities. However, to the extent that the best of the present vehicles, or even existing prototype vehicles, do not employ all available fuel economy-improving technology, this approach does not truly measure even current maximum capabilities. Further, it does not consider technological improvements that will occur in time to be incorporated in the 1981-84 passenger automobiles. Therefore, in developing 1981-84 fuel economy standards, the Department has employed a different approach. The adopted methodology looks at present passenger automobiles and projects the impact of applying current and expected future technology to those vehicles. This approach has the disadvantage that no one has actually built or tested a vehicle that combines the technological attributes of the vehicles postulated in the analysis. However, the Department is convinced that the individual technologi-

cal improvements considered in this analysis have been sufficiently well demonstrated through engineering analysis and other means that the combined fuel economy projections provide a reliable estimate of the achievable fuel economy of future passenger automobiles.

The Department's analysis started with the detailed schedules for downsizing, weight reduction through materials substitution and matching of engines with vehicles by the four major domestic manufacturers, as contained in the Support Document. Then the schedules for inertia weight reduction over the period 1981-85 were revised to reflect further information. The projected fuel economy results for each manufacturer for each year were then revised to reflect the new weight estimates as well as the Department's assessment that an average 10 percent reduction in acceleration performance could be achieved by the 1981 model year to increase fuel economy by an additional 4 percent.

Next, the percentage increases in fuel economy due to technological improvements in transmissions, aerodynamic drag, rolling resistance, engine and vehicle accessories, and lubricants were evaluated and these technological improvements were projected to be phased-in to the 1981-85 vehicles at various rates for each manufacturer. The phase-in schedules took into account differences in capability for implementation among the manufacturers.

The technologies and the associated increases in fuel economy are:

Improved automatic transmission	10%
Improved manual transmission	5%
Improved lubricants	2%
Reduced accessory loads	2%
Reduced aerodynamic drag	4%
Reduced rolling resistance	3%

In addition, the assessment included a 1 percent fuel economy penalty due to safety standards necessary to assure adequate levels of crash survivability in the automobile fleet of the 1980's. See RSP.

Finally, the distribution of car sizes for each manufacturer was assumed to be approximately the same as in 1976.

The diesel engine was also considered in the assessment. It is available to manufacturers as an alternative way to obtain increased fuel economy and the Department concludes that manufacturers potentially could achieve a 25 percent penetration of diesel engine powered passenger automobiles by 1985. Similarly, the Department considered a shift in size distribution to 10 percent large cars, 25 percent midsize, 25 percent compact, and 40 percent subcompact by 1985 as a way to obtain a further increase in fuel economy. Diesel engines and mix shifts were placed in a "safety margin" category of technologically feasible means for the purposes of this rule-making.

The economic practicability of the specific technical approach to improving fuel economy was examined in depth. The assessment considered the cost to the manufacturer of the needed capital facilities and the variable costs associated with the various technological improvements in fuel economy. It projected price increases based on those cost estimates. It examined the overall costs to the consumer due to changes in new car prices, improvements in fuel economy, and changes in maintenance costs over the life of the car. It considered the impacts of price and fuel economy changes upon new car sales. It examined in some depth the capability of the four domestic manufacturers to finance the capital facilities and equipment out of revenue.

This approach results in a demonstration of *one* feasible path for attainment of the fuel economy standards, which, however, is not necessarily the least cost or lowest risk path for each automobile manufacturer to adopt to achieve compliance. Since the fuel economy standards are "performance standards," manufacturers are free to select any alternative path for achieving compliance. Even if the Department had based its fuel economy projections on the use of all known technology, manufacturers would still have flexibility in achieving compliance. In some cases, the Department's analysis makes an allowance for alternative technologies (e.g., downsizing or material substitution to achieve weight reduction) from which manufacturers may select. In addition, manufacturers may increase the percent of their production for which some methods are used and thereby generate flexibility to decrease

the usage of some other method. The manufacturers may vary the intensity with which they apply a particular method, for example, achieving a greater or lesser reduction in weight or acceleration capability. Many of the achievable improvements assumed in the analysis are based on projections of fuel economy improvement potential which the Department considers conservative. If improvements in fuel economy greater than those projected are in fact realized, more flexibility is obtained. Finally, any new technological developments over the intervening years would generate additional flexibility. For these reasons, it is clear that, even excluding the measures comprising the compliance safety margin provided in this analysis, alternate approaches to complying with fuel economy standards will be open to the automobile manufacturers.

#### B. *Statutory requirements.*

Section 502 of the Act provides guidance regarding the analysis to be used in setting the 1981-84 fuel economy standards. The first required step is to determine the "maximum feasible average fuel economy level." The first consideration required under section 502(e) in determining that level is "technological feasibility." The Department interprets the latter phrase, in the context of the "maximum feasible" requirement and the methodological approach discussed above, as presenting the question of whether the various technological options for improving fuel economy are, individually and when used with other options, capable of commercial application in 1981-84. Therefore, the technology considered in the Department's assessment is not limited to that presently in production. If it can be reasonably projected that the technology will become available in time to be applied in a specified model year, its use is technologically feasible in that year. See generally *Chrysler Corp. v. Department of Transportation*, 472 F.2d 639 (6th Cir. 1972, at 671-3; *International Harvester v. Ruckelshaus*, 478 F.2d 615 (D.C. Cir. 1973), at 628-9. Although marketing strategies for encouraging the purchase of fuel efficient passenger automobiles are not items of technology, those strategies have been included in the "mix shift" portion of the

discussion of the technology-based average fuel economy projections. Given the use of "maximum," the Act must be construed to require the Department to base its analysis on the use of all feasible methods for improving average fuel economy.

The NPRM, at 42 FR 10322, solicited comment on the second statutory consideration, "economic practicability." Ford Motor Company argued that this consideration, along with the technological feasibility consideration, requires the Department to reject any level of standards which would create even a risk of reductions in industry sales, employment or profits or of restrictions in the mix of automobiles offered for sale. DN-15, Document II, p. 2. Ford suggests basing the standards on a "risk-benefit" analysis. Chrysler Corporation argued that the term means as a minimum that "the various manufacturers are financially capable of taking the necessary steps to insure compliance." DN-30, p. 20. Chrysler goes on to state that the analysis should require a consideration of the impacts of the proposed standards on employment, inflation, and consumers. The Department's view on this issue is more consistent with that of Chrysler than with Ford's.

The dictionary meaning of the word "practicable" is that something is "capable of being put into practice, done or accomplished." Webster's Third New International Dictionary, p. 1780 (1961) & Oxford English Dictionary, p. 1218 (1970). "Economic practicability" is nowhere defined in the Act. However, similar terms, "economically justified" and "economically feasible," are used in Part B of Title III of the Energy Act, and it is possible to infer the meaning of "economic practicability" from the use of those terms. The word "practicable" is synonymous with "feasible," according to the Oxford definition. This appears to be consistent with the way the term is used in the Act.

Section 325(a)(4)(D) defines "economically justified":

... improvement of energy efficiency is economically justified if it is economically feasible the benefits of reduced energy consumption, and the savings in operating costs throughout

the estimated average life of the covered product, outweigh—

- (i) any increase to purchasers in initial charges for, or maintenance expenses of, the covered product which is likely to result from the imposition of the standard,
- (ii) any lessening of the utility or the performance of the covered product, and
- (iii) any negative effects on competition.

It should be noted that “economically feasible the benefits of” is a grammatical error which appears in the Energy Act itself as well as the Conference Report. The legislative history indicates that it should probably be read “economically feasible and if the benefits of.”

Section 325 clearly contemplates that a standard must be *both* economically feasible *and* justified on a cost-benefit basis. Since Congress used the two concepts separately, it obviously did not intend them to be synonymous, i.e., economically feasible is not the same as cost-beneficial. This is further made clear by the definition of feasibility in the Conference Report:

The term feasibility is used in section 325 in the strict sense, namely “capable of being carried out.” Economic feasibility refers to whether or not a manufacturer has the economic capability to carry out the requirements of an energy efficiency standard. S. Rep. No. 94-516, H. R. Rep. No. 94-700 (94th Cong., 1st Sess.) at 172.

In the dictionary definitions listed above, “feasible” was listed as a synonym for “practicable,” and interchanging them would lead to the conclusion that economic practicability is a separate concept from cost-beneficial (the second element of economically justifiable).

In addition, not equating cost-benefit considerations with economic practicability is consistent with the goal of achieving maximum feasible fuel economy by allowing economically and technologically possible standards which will improve fuel economy but which an analysis, subject to many practical limitations, might indicate are not cost-beneficial.

The word “practicable” appears in the other major vehicle regulatory statute that NHTSA administers, the National Traffic and Motor Vehicle Safety Act. Section 103(a) of the Vehicle Safety Act (15 U.S.C. § 1392(a)) states, in part:

... The Secretary shall establish by order appropriate Federal motor vehicle safety standards. Each such Federal motor vehicle safety standard shall be practicable ...

Unfortunately, the term is defined neither in the Vehicle Safety Act nor its legislative history. However, the legislative history of the Vehicle Safety Act states that the determination of practicability must include consideration of technological and economic factors. Further, there is a small body of judicial interpretations of the term which outlines its contours.

First, it is clear that the term does not mean cost-beneficial. In “Chrysler Corp. v. Department of Transportation,” 472 F. 2d 639 (6th Cir. 1972), the court noted that the Automobile Manufacturers Association had suggested a number of amendments to the bill from which the Vehicle Safety Act arose, including limiting standards to those at costs commensurate with the benefit to be achieved. *Id.* at 672, fn. 16, and stated:

None of these specific restraints sought by the Automobile Manufacturers Association was adopted, and we must decline to write into the Act the very same suggestions which Congress declined to write into the Act. *Id.* at 672, fn. 16.

Considering the definition of “economically justifiable” that Congress placed in Part B but not Part A of Title III of the Energy Act, the Department must likewise decline any invitation to write such limitation into Part A.

What “practicability” does mean is suggested in the following cases. In “Chrysler Corp. v. Department of Transportation,” 515 F. 2d 1053 (6th Cir. 1975), relating to rectangular headlamps, the court stated:

A review of the cases in this area suggests the practicability requirement was designed primarily to prevent the NHTSA from establishing mandatory safety standards that are economically or technologically infeasible. (citations omitted). *Id.* at 1060.



In "Chrysler Corporation v. Department of Transportation," 472 F. 2d 659 (6th Cir. 1972), relating to passive restraints the court stated:

We do not intend to suggest that the Agency might impose standards so demanding as to require a manufacturer to perform the impossible, or impose standards so imperative as to put a manufacturer out of business. But it is clear from the Act and its legislative history that the Agency may issue standards requiring future levels of motor vehicle performances which the manufacturers could not meet unless they devoted more of their resources to producing additional safety technology than they might otherwise do.

Id. at 672. It should be noted that this explicitly recognizes the Department's authority to set standards at non-free market dictated levels, i.e., at levels not fully cost justified under traditional free market economic theory.

Finally, in "H & H Tire Co. v. U.S. Department of Transportation," 471 F. 2d 350 (7th Cir. 1972) the Court said:

We agree with the Government that "the fact that a government regulation may cause economic hardship to a party does not make such regulation unreasonable." Id. at 354.

Congress was presumably aware of the judicial interpretation of this term. It can be inferred from Congress' use of the same term in the Cost Savings Act as in the Vehicle Safety Act, both of which are overseen by the Commerce Committee and administered by the NHTSA, that Congress intended the same interpretation in both cases.

Considering all these factors, the Department concludes that "economic practicability" should be interpreted as requiring the standards to be within the financial capability of the industry, but not so stringent as to threaten substantial economic hardship for the industry. A cost-benefit analysis would be useful in considering these factors, but sole reliance on such an analysis would be contrary to the mandate of the Act.

The third consideration in determining "maximum feasible average fuel economy" levels is "the effect of other Federal motor vehicle standards on fuel economy." This term is interpreted to call for making a straight-forward adjustment

to the fuel economy improvement projections to account for the impacts of other Federal standards, principally those in the areas of emission control, occupant safety, vehicle damageability, and vehicle noise. However, only the unavoidable consequences of compliance with these standards should be accounted for. The automobile manufacturers must be expected to adopt those feasible methods of achieving compliance with other Federal standards which minimize any adverse fuel economy effects of those standards.

The final statutory consideration is the "need of the Nation to conserve energy." The Support Document contains information on this topic, including a discussion of the impact of our national need to import large quantities of petroleum, and the impact of various automotive fuel economy standards schedules on such importation. No participant in the rulemaking proceeding disputed the importance of the need to conserve energy. The magnitude and prominence of this need have increased in the years since Congress' amendment of the Act. It must be recognized that achieving improvements in automobile fuel economy, no matter how great, will not by itself solve the national energy problem. Maximum conservation efforts must be made in all areas of energy consumption if the nation is to begin to solve its overall energy problem. It would jeopardize the overall national conservation effort if individual elements of that effort, such as the automobile fuel economy program, were to fail to require the last increments of feasible fuel savings on the sole ground that such increments are small in comparison to the overall need. Therefore, in considering various fuel economy schedules for 1981-84 passenger automobiles, the Department must select the highest schedule consistent with the other statutory requirements, due to the serious national need to conserve energy. See Federal Energy Administration submission, DN-37, pp. 1-2.

The second substantive statutory requirement for the 1981-84 standards is that they must result in "steady progress" toward meeting the 1985 standard. Although the Act does not define the term "steady progress," some guidance as to the term's meaning can be obtained by reference to

the "plain meaning" of the two words, cases construing the two words, and the Act's legislative history. From a review of these materials, it appears that the term requires annual increases in average fuel economy, but with none of the annual increments varying dramatically from the other annual increases. Schedules like those suggested by American Motors Corporation (Tr-I, p. 74) and by Daimler-Benz AG (DN-10, p. 11), which require increases in average fuel economy in only one year during the 1981-84 period, would be inconsistent with the "steady progress" requirement, even if they met the "maximum feasible" requirement, since they do not require annual progress. On the other hand, a projected maximum feasible average fuel economy level of 26 mpg for 1981, for example, would have to be adjusted downward because of the disproportionately large increment resulting for that year.

### III. Determination of maximum feasible average fuel economy levels.

#### A. Technology-based fuel economy projections.

Participants in the rulemaking proceeding did not seriously challenge the appropriateness of the basic methodological approach used in the Support Document (Docket Number FE 76-01 GR-3) to project fuel economy improvement potential. That methodology assigns an analytically-derived percent average fuel economy improvement to certain options which are technologically feasible and applies that percentage to each of the various manufacturers' present passenger automobile fleets. The same implementation schedule is not used for all manufacturers nor for all automobiles in a given manufacturer's fleet due to the significant differences which exist in the financial capability and in the efficiency of the current automobiles of the various manufacturers. Rather, a maximum appropriate improvement schedule taking those factors into consideration is assigned. The technology considered in the development of the standards established in this notice are discussed in detail below. Because of the qualitative difference in the domestic automobiles and the imports, the fuel economy improvement potential of the imports will be discussed separately.

#### 1. Weight reduction.

The most obvious method for improving fuel economy is to make the passenger automobile lighter. For analytical purposes, the Support Document divided this option into three sub-options: downsizing; material substitution; and mix shifts. "Downsizing" referred to the reduction of vehicle weight and exterior dimensions by optimizing the vehicle design. The goal of downsizing is to reduce the exterior dimensions of the automobile without reducing significantly the interior passenger and luggage volume of the automobile. According to General Motors, this option "retains the essential characteristic of cars that meet a variety of consumer needs and desires." DN-18, Attachment VII, p. 3. The Department notes that there is significant variation in the interior space of different passenger automobiles with the same number of seating positions and that tradeoffs between interior space and improved fuel economy are possible. "Material substitution" refers to the substitution of materials with lighter weight for a given strength, such as aluminum, plastics, and high-strength steel, for currently used materials. "Mix shifts" refers to shifting the percentages of the vehicles sold in different market classes (e.g., selling more compacts and fewer midsize automobiles). For explanation of these market classes, see the fuel economy labeling regulations established by E.P.A. in 41 FR 49753 (November 10, 1976). The automobile manufacturers generally argued that they were unable to differentiate between weight savings attributable to downsizing and material substitution, since they are both inseparable parts of the vehicle redesign process. See GM comment, DN-18, p. 11; Chrysler comment, DN-32, pg. 11. Therefore, the Rulemaking Support Paper has combined the weight reduction potentials for those two methods. Mix shifts will be dealt with separately in section III.A.10.

The Support Document based its projections of feasible weight reduction through downsizing primarily on the reductions already achieved by General Motors with its large-sized vehicles and on press reports of planned downsizing of the other market classes. See Support Document 2, Volume I, page 2-7. Since these projections were based on current downsizing efforts, they

may well understate the maximum potential for downsizing in 1981-84. See DN-11, p. 4, comments of Mr. Thomas Austin. In fact, Ford, in response to the April 1 special order (DN-7) projected greater total weight reduction for its fleet than NHTSA had originally assumed. DN-15, Doc. III, p. 30. GM strongly implied that a second round of downsizing, in addition to the one now underway, was both feasible and planned. DN-18, Att. VIII, p. 3. In addition, GM submitted a "hypothetical scenario" of actions it could take to meet a standard of 27.5 mpg in 1985. DN-18, p. 12. Although GM characterizes this scenario as "drastic," the company's main concern appears to be that the scenario assumes the use of diesel engines in 25% of its automobiles and a reduction in average acceleration capability. The projected weight reductions, which are significantly greater than those initially projected by NHTSA, do not appear "drastic," and are generally consistent with Ford's projections. The reasonableness of GM's projections can also be inferred from GM's statement that the reduction assumed *no* mix shift toward smaller market classes (p. 12) and the fact that its projected average inertia weight for 1984 subcompacts (p. 13) is substantially higher (2690 pounds) than that of many subcompacts built today.

Additional evidence that the Support Document's projections of achievable weight reductions were unduly pessimistic was provided by Alcoa and U.S. Steel Corporation in response to the April 20 special order. See DN-27. Alcoa projected that the use of aluminum in certain vehicle components where that use is expected to be feasible by 1982 could reduce the weight of a present compact car by 415 pounds. Alcoa emphasized that that total was *not* based on a complete list of *all* feasible aluminum substitutions and that no allowance was made for propagation effects, i.e., the ability to reduce the weight of certain additional components because of weight reductions achieved in other components. DN-27-D.

Alcoa projected a material cost increase of only \$33 for its proposed aluminum substitution. U.S. Steel projected a slightly greater weight reduction, at a higher cost, through the substitution of certain steel products for those presently

used. DN-27-A. These projected weight reductions, which do not refer to identical lists of vehicle components, are approximately twice as great as those projected in the Support Document, Doc. 2, Vol. I, page 2-7, of 150-250 pounds. Since the Alcoa and U.S. Steel projections were not available at the time of the NPRM, the Department is reluctant at this time to revise upward its projections in this rulemaking of weight-saving potential on the basis of those submissions. However, these submissions do support the feasibility of the original weight reduction projections.

Front engine, front wheel drive power trains offer another technological option for further downsizing of passenger automobiles. GM (DN-18, p. 10) and Chrysler (DN-19, p. 7) each projected use of such power trains in their fleets in 1981-84. Their use allows additional vehicle downsizing through maximizing passenger compartment volume by elimination of the driveline tunnel and rear axle kick-up area. It may also be possible to reduce the length of the engine compartment by transverse mounting of the engine and transmission. The only projection given for fuel economy improvements associated with front wheel drive was the 5 percent figure offered by Dr. Sawyer at the hearing. Tr-III, p. 93. Although no percent improvement is assigned to front-wheel drive for the purposes of this analysis, the use of such power trains is recognized as a feasible method for optimizing vehicle design. The availability of this option, which was not part of the original DOT analysis, tends to confirm the Department's conclusion that the weight reductions projected in the Support Document are conservative estimates of the maximum feasible reductions. There appears to be no technological reason which would prohibit the use of such power trains in all vehicles, particularly if the implementation of this option were phased in concurrently with transmission changes. (See sections 3 and 4.)

Therefore, the weight reductions assumed for Ford and GM have been revised to take into account the higher projections made by those companies, but not the submissions by Alcoa and U.S. Steel. In the case of AMC and Chrysler, the original projections in the Support Document have been retained, despite the claims of those

two manufacturers that the Department's projections exceed their plans.<sup>3</sup> AMC argues that its vehicles are presently optimally designed, and that the other manufacturers' downsizing plans will merely bring the latter automobiles up to AMC's level of efficiency. DN-14, p. 1. Chrysler argues that DOT projections are 100-200 pounds too optimistic per vehicle. DN-30, p. 9. With respect to both AMC and Chrysler, there is no reason to believe that the improvements associated with material substitution are not as fully applicable to them as to Ford and GM, which did not dispute the projected improvements. Neither AMC nor Chrysler gave any indication that they presently use light-weight materials to a greater extent than their domestic competitors, and a comparison of the weights of their present vehicles confirms that there is no such difference. AMC's claim that absolutely no downsizing of its vehicles is possible must also be rejected. For example, the AMC Gremlin has less interior room than a Honda Accord, but weighs nearly 800 pounds more. See 1977 EPA/FEA Gas Mileage Guide, Second Edition, and Automotive News, 1977 Market Data Book Issue, April 27, 1977, p. 76, 109. The AMC Hornet weighs nearly 500 pounds more than an Audi 100LS, but has less interior room. The AMC Pacer weighs nearly 600 pounds more than that same Audi model, with equivalent interior roominess. The AMC Matador weighs 168 pounds more than a large size Pontiac, based on a comparison of six-cylinder versions of both cars, but has eight less cubic feet of total interior volume. A similar comparison between present Chrysler and Ford automobiles reveals no significant differences in weight or roominess, yet Ford projects that it will achieve a significantly lower fleet average weight than Chrysler. It is significant that Chrysler engineers have projected that weight reductions of 630 pounds could be achieved through light-weight material substitution alone in a mid-size car, with "moderate changes in

design and manufacturing techniques." SAE Paper #760203, Docket FE-76-01-GR-21.<sup>4</sup> Those engineers project that such weight reduction techniques could be implemented in "two or three years," with a resulting fuel economy improvement of 26 percent. Therefore, the original assessments of weight reduction potential for AMC and Chrysler have been retained. The originally adopted schedule for attaining those reductions allows more time for those two companies to complete the process than in the cases of Ford and GM, in order to take into account differences in economic and product development capabilities (see Support Document, Doc. 4). These delays provide needed flexibility for the smaller domestic manufacturers without significantly reducing total fuel savings. Table 5.1 of the RSP provides the projected fleet average inertia weights for each manufacturer and the resulting fuel economy values appear in Table 5.9.

## 2. *Reduction in straight-line acceleration capability.*

Over a limited range of engine parameters, it is possible to achieve fuel economy improvements through reducing engine displacement or the ratio of engine speed to vehicle speed ( $N/V$ ), or some combination of those two items. These reductions, while improving fuel economy, also adversely affect vehicle acceleration capability. Where it is possible to merely substitute one set of gears for another to change the axle ratio or expand the ratio of transmission gearing or where sufficient plant flexibility exists for a manufacturer to increase the production of lower displacement engines, this method of improving fuel economy can be implemented in a highly economical manner. The primary constraint which restricts the use of this method is consumer resistance, at least initially, to significantly reduced levels of vehicle acceleration. A secondary constraint is the increased difficulty of controlling NOx emissions as engine loading increases.

<sup>3</sup> Many of the automobile manufacturers' specific objections to the percent improvements projected by the Department for various technological options are phrased in terms of differences between DOT projections and the manufacturer's present "plan." It is clear, however, that under the statute DOT's projections must be based on maximum achievable improvements, notwithstanding any contrary "plans" by the manufacturer.

<sup>4</sup> "SAE Papers" are technical research papers presented before the Society of Automotive Engineers. The papers cited in this notice were prepared by engineers and scientists expert in particular areas of automotive technology.

Therefore, in the April 1 special orders, the automobile manufacturers were required to submit estimates of the minimum level of acceleration performance which consumers currently find acceptable. DN-7, Question I.B.2. The responses to this question were relatively consistent. In terms of the time required for vehicles to accelerate from rest to a speed of 60 miles per hour, GM indicated that vehicles which require more than 15 seconds are "currently meeting with unfavorable consumer acceptance" (DN-18, p. 5); Ford judged the same time to be the "minimum performance acceptable without encountering consumer resistance" (DN-15, p. 11); Chrysler estimated a "threshold level" at about 17 seconds (DN-32, p. 8); and AMC states that times in excess of 20 seconds are "clearly unacceptable" (DN-14, p. 4). However, the specified "thresholds" do not appear to be absolute minima, even at present, which all passenger automobiles must exceed. GM states that 16 percent of its present fleet of passenger automobiles presently have acceleration times poorer than its specified minimum (id., p. 5). Ford states that nearly 26 percent of its fleet is in that class (DN-43, Att. I), and AMC states that 26 percent of its sales are presently near the 20 second threshold (id., p. 4). Eight percent of Chrysler's *domestic* fleet has acceleration times poorer than 17 seconds. DN-32-A. Large portions of all manufacturers' current import fleets have acceleration performance levels poorer than these "thresholds."

In view of these statements, it is concluded that a reduction in average passenger automobile acceleration of approximately 10 percent from the present average baseline acceleration times of approximately 14 seconds can be achieved without incurring substantial consumer resistance. This reduction roughly corresponds to a fleet average "zero-to-sixty" time of 15.4 seconds, and would be phased-in by the 1981 model year. A fuel economy benefit of four percent would result from this change.

It should be noted that several factors combine to mitigate the impact of even this relatively modest reduction. First, it is possible for the manufacturers to achieve this reduction by narrowing the range of offered acceleration characteristics, e.g., by decreasing the acceleration

time for its faster automobiles. Even under the GM "Hypothetical Scenario," which assumed a greater performance reduction than the one projected here, the reduction in average acceleration performance is achieved while concurrently *improving* the performance of the slowest of GM's present passenger automobiles. DN-18, p. 17. In addition, it may be possible for the manufacturers to offset this performance reduction in their passenger automobiles. At the same time that a manufacturer switches from an 8-cylinder engine to a 6-cylinder engine or lowers the N/V ratio, it could increase the acceleration performance of whatever engine is used by using a turbocharger or fuel injection system. The use of this alternate technology may even result in a net fuel economy benefit, in some cases. DN-16, p. 1 (Volkswagen) and DN-27B, p. 2 and Attachment (Bendix). Fuel injection is presently used on a number of passenger automobiles, and at least one manufacturer plans to use turbochargers in the near future. DN-18, p. 9 (GM). Volkswagen, under DOT contract, tested a turbocharged version of the Diesel Rabbit and achieved a fuel economy improvement of up to 18 percent with a concurrent *improvement* in acceleration performance. The acceleration level of this vehicle is superior to that of approximately 24 percent of General Motors' present passenger automobiles. DN-16, p. 2 (VW) and DN-18, p. 6 (GM). The fuel economy benefit from turbocharging is an indirect one which would typically result from the ability to substitute a smaller displacement engine for the larger one currently used and increasing the smaller engine's horsepower while maintaining its better fuel economy by turbocharging. Therefore, the performance reduction discussed above is adopted in the analysis on which the 1981-84 standards is based. See Rulemaking Support Paper, Section 5.3, for a further discussion of this topic.

### 3. Improved automatic transmissions.

The Support Document projected that improvements in automatic transmissions could result in a 10 percent fuel economy improvement in vehicles which use automatic transmissions, or about 85 percent of the domestic fleet. This improvement was based on tests of prototype transmissions under contract for DOT, and several studies presented in papers submitted to the

Society of Automotive Engineers. *Id.* Document 2, Vol. 1. These data indicate that improvements up to nearly 20 percent are achievable with certain types of improved automatic transmissions. Present automatic transmissions are generally three-speed units with a conventional torque converter. Some data generated by the domestic manufacturers indicate that certain modified versions of the present three-speed transmissions, principally those employing a lock-up clutch on the torque converter in conjunction with a wide gear ratio range, have the potential to achieve the assumed 10 percent improvement. In addition, a four-speed, wide ratio range automatic transmission has the potential to achieve even greater fuel economy improvements, but at significantly higher costs. Ford, GM, and Chrysler each projected fuel economy improvements achievable through the use of one or more of the above types of automatic transmission of a magnitude either consistent with or very close to the assumed 10 percent figure projected in the Support Document, DN-15, Doc. I, p. 3; DN-18, p. 3; DN-30, p. 11. Volvo also supported the 10 percent improvement projection. DN-28-02, p. 5. Even if the higher cost four-speed unit is necessary to achieve this improvement, none of the four domestic manufacturers claimed that the use of such units is economically impracticable, in response to a specific question in the April 1 special order. DN-7, Questions IIA and B. Indeed, Ford has begun plant modifications to permit the production of a four-speed automatic transmission with lock-up torque converter in time for installation in some 1980 model year automobiles. Docket FE-76-01-GR 23. Therefore, the original 10 percent improvement is retained in the final analysis.

GM argued that the 10 percent improvement in automatic transmissions is not applicable to all automobiles which use automatic transmissions. DN-19, p. 3. Lightweight vehicles "with small displacement engines, small automatic transmissions and high axle ratios" are projected to attain a significant share of the market and, according to GM, the fuel economy of such vehicles is not significantly improved by the addition of a lock-up clutch. *Id.*, p. 4. NHTSA cannot accept this argument for several reasons. First, GM addressed itself primarily to the im-

pact of the lock-up clutch, without addressing the impact of increasing the number of geared speeds, which, as was previously noted, is considered both technologically feasible and economically practicable, or of other transmission improvement techniques. Second, none of the other manufacturers raised a similar objection to the assumed across-the-board application, despite their even greater orientation toward smaller market class automobiles. Third, it should be noted that General Motors' engineers have projected fuel economy improvements up to nearly 20 percent, over a wide range of engine sizes and axle ratios. See SAE Paper #770418, Docket FE-76-01-GR-21. It may be that GM is implying that its future use of a (presumably new) small automatic transmission with high axle ratio would obviate the need to use a lock-up torque converter on its small cars. If this is true, then the projected 10 percent improvement figure for all automobiles which employ automatic transmissions is still correct, since the new drive train would achieve that improvement. GM is in no way constrained to achieve that improvement in precisely the same manner in which it is postulated in this analysis.

AMC stated that it could only achieve a 2 percent improvement in its automatic transmissions. DN-14, p. 1. However, AMC presently purchases its transmissions from Chrysler and is likely to continue to purchase such technology from outside sources in the future. Therefore, any transmission improvements achieved by the "Big Three" would become available to AMC, albeit on a delayed basis. Implementation delays similar to those assumed for Chrysler and AMC for weight reduction were also assumed for transmission improvements in this analysis. See RSP Tables 5.5-5.8.

#### 4. *Improved manual transmissions.*

Another possible area of fuel economy improvement is the use of additional drive gears in manual transmissions. Many domestic manual transmissions have only 3 speeds. Information received on this subject in response to the April 1 (DN-7) and April 21 (DN-28) special orders supports a projected fuel economy improvement of 5 percent for the manual transmission portion of the fleet. DN-18, p. 8 (GM); DN-28-02, p. 6

(Volvo); DN-28-03, p. 5 (Honda). Ford's submission supports the feasibility of this substitution for all present manual transmissions. DN-15, Doc. 1, p. 11. No information was submitted which raised any doubts about the technological feasibility or economic practicability of this option. In fact, five-speed manual transmissions have currently achieved substantial market penetrations in the import fleet. Honda projects that the use of five-speed manual transmissions would result in a \$50 per vehicle price increase (for those vehicles with manual transmissions). DN-28-03, p. 5. Therefore, a 5 percent improvement for all manual transmission vehicles was adopted in the analysis. The percentage of vehicles which use manual transmissions was not projected to increase between the present and 1985, due to the difficulty encountered by certain manual transmission vehicles in attempting to meet more stringent emission standards. The use of manual transmissions with additional drive gears results in a small, but nevertheless significant, increase in average fuel economy.

#### 5. Improved lubricants and accessories.

Improvements in average fuel economy can also be obtained through the use of synthetic, lower viscosity, or extended viscosity range lubricants and through improvements in the efficiency of vehicle and engine accessories such as pumps, fans, and accessory drives. A total improvement of 4 percent was assigned to these options in the Support Document, 2 percent for each category. See Doc. 2, Vol. I, p. 2-19. Three domestic manufacturers which addressed this issue did not object to the 4 percent improvement projection. DN-18, p. 1 (GM); DN-15, Doc. I, p. 3 (Ford); DN-14, p. 1 (AMC). Improvements up to the assumed 4 percent for lubricant improvements alone have been documented. See SAE Papers 750376 (Docket FE-76-01-GR-21) and 750675 (Docket FE-76-01-GR-21). Therefore, the assumed 4 percent improvement is retained in this analysis.

#### 6. Reduction of aerodynamic drag and rolling resistance.

Further fuel economy improvements are achievable through reducing the automobile's aerodynamic drag and rolling resistance. The

latter term refers to the use of improved radial and other advanced tires and reductions in the frictional losses of bearings and other similar drive line and chassis components. Aerodynamic drag and rolling resistance improvements should be achieved in two ways. The first way is to obtain credit for aerodynamic drag reductions already achieved, through the use of the optional EPA "coast-down" procedure for determining road load dynamometer settings in fuel economy tests. See 40 CFR 86.177-11(e)(2). If the optional procedure is not used, fuel economy test results will be based on current tabulated values of road load power which in certain cases may result in deleterious fuel economy effects. The second way results from future improvement in these two areas. Credit for future aerodynamic drag reductions must also be obtained through the use of the optional EPA procedure. Data indicates that improvements in the first category alone can be of substantial magnitude. See RSP, App. D, Ref. 18.

The automobile manufacturers expressed a major difference of opinion on the magnitude of achievable improvements in this area. GM indicated that improvements up to 4 percent for aerodynamic drag and 4 percent for rolling resistance were achievable. DN-18, p. 5, 10, and ANPRM submission, Docket Number FE 76-01-N01, #10, pp. 16a, 21-24. The other manufacturers indicated much lower improvement potential, although apparently not assigning a high research and development priority to these items. DN-14, pp. 4, 5 (AMC); DN-19, p. 3, DN-32, Att. II (Chrysler); DN-15, Doc. I, p. 11 (Ford). As was frequently the case with the manufacturers' statements, the percent improvements given reflect present plans as opposed to maximum capabilities. Therefore, the Department conducted an investigation to determine which of the disparate projections most closely corresponded to the actual maximum feasible improvement. Available data indicates that improvements in the upper range of GM's projections are in fact feasible for the 1981-84 time period. Volkswagen, for example, has demonstrated how relatively minor changes to automobile exterior design can result in significant reductions in aerodynamic drag, even beyond the GM projections. SAE Paper #760185, Docket FE-76-01-

GR-21. Methods for reducing aerodynamic drag are discussed further in Appendix D of the Rulemaking Support Paper.

In the case of rolling resistance, it appears that a 5 percent fuel economy improvement can be obtained by switching from bias tires to "first generation" radials, although much of the switching has already occurred. "Second generation" radials which will offer further improvements of 2 to 4 percent are now under development, with GM apparently being the leader in this area among the auto companies. Docket FE76-01-GR-19, 20, 22. It should be noted that developments in this area will result from the automobile companies working together with the tire manufacturers, since the automobile companies generally do not manufacture their own tires. It is likely that major breakthroughs by one automobile manufacturer would soon become available to all manufacturers, since the tire company which produces the improved tire could market that tire freely. Additional rolling resistance reduction can be obtained through increasing tire inflation pressures while making appropriate changes in the vehicle suspension system. See Appendix D of the Rulemaking Support Paper for further information on reducing rolling resistance. It is concluded that the previously discussed improvements in each of these two areas are feasible in the 1981-84 time frame, on a gradual phase-in basis. See RSP, Tables 5.5-5.8.

#### 7. Use of alternative engines.

The present fleet of domestically manufactured passenger automobiles is powered exclusively by conventional, homogeneous charge spark ignition gasoline engines. However, certain alternative engine types such as the diesel and such stratified charge concepts as the Honda CVCC and the Ford PROCO (programmed combustion) offer the potential for significantly better fuel efficiency than present engines. Many manufacturers plan to use some form of alternative engine in their domestic fleets in the near future, including General Motors with the diesel (DN-18, p. 32), Ford with the PROCO (DN-15, Doc. I, p. 2), and Chrysler with a form of pre-chamber engine (DN-35-01, Attachment B, p. 6), in addition to the Honda CVCC and Mercedes, VW, and

Pugeot diesels already on the market. In the case of the diesel, the Support Document projected (Summary Report, p. A39), and the domestic manufacturer most actively pursuing the development of diesel engines confirmed in its response to the April 1 special order, that the diesel offers 25 percent better fuel economy than a comparably performing conventional spark ignition engine. DN-18, p. 2 and Attachment V (GM); DN-7, Question I.A. In addition, Volvo indicates that the PROCO engine can be expected to provide an improvement in fuel economy of approximately 20 percent. DN-15, Doc. I, p. 3 and Tr-II, p. 38. Honda projects a fuel economy improvement differential of roughly 10 percent for its CVCC engine. DN-28-03, p. 11. This projection may be low. The fuel economy difference between its CVCC and non-CVCC versions of the Civic, as determined in EPA fuel economy tests, is approximately 30 percent. The Support Document's projection of a 25 percent improvement in fuel economy for the diesel was based on a comparison of fuel economy differentials actually experienced by GM and VW with their recently certified diesel passenger automobiles.

A number of objections were raised by a variety of participants in the proceeding with respect to the Department's original projections of a market penetration for diesels in the passenger automobile fleet growing linearly from 5 percent in 1981 to 25 percent in 1985. The passenger automobile industry argued that the primary difficulties in achieving those substantial market penetrations involve questions about the marketability of diesels and the ability of diesel engines to meet stringent nitrogen oxides emission standards. Tr-II, p. 105, 126. (GM); DN-19, p. 1 (Chrysler). The marketability problem for diesels is attributed to their higher initial cost and current problems with exhaust smoke, engine noise, cold-starting, fuel availability, and odors. The nitrogen oxide problem results from the diesel's alleged inability to achieve nitrogen oxide standards as low as 1.0 gram-per-mile, the level specified in the Senate and House versions of the Clean Air Act amendments. On the other hand, representatives of some public interest groups argued that the most serious problem with the diesel engine is that it emits certain



presently unregulated, but nevertheless dangerous, pollutants such as particulates and polynuclear aromatics (PNA) and that increased use of diesel engines should therefore be pursued with caution. DN-12, pp. 19-28 (Citizen's for Clean Air); Tr-I, p. 93 (Dr. Sawyer, for Environmental Defense Fund).

In order to obtain more information on the marketability of diesel engines, the Department, in the April 1 special order, required those passenger automobile manufacturers most actively pursuing the diesel option to submit copies of any surveys in their possession relating to the marketability of diesels in the United States. DN-7, Question IV.A (GM) and Question B (VW). These surveys tended to support the conclusion that a 20 to 25 percent market penetration is potentially achievable. DN-18, Att. IV. It appears that the initial orientation of present passenger automobile buyers toward diesels is improved significantly when potential buyers obtain more information about the diesel's characteristics. In addition, present consumer resistance to diesels is based on perceptions of those diesel vehicles presently on the road. GM reports that "(r)ecent developments have significantly improved some of the factors that have historically detracted from the market acceptance of diesel engines such as noise, odor, cold start time and reduced acceleration." DN-18, p. 2. See also DN-16, p. 1 (VW), with respect to the turbocharged diesel Rabbit. Further improvements in diesel performance can be anticipated as the use of diesels is expanded. Therefore, marketability of diesel engines does not at this time appear to be as serious a problem as the manufacturers have indicated, although questions of the precise extent of future market penetration remain.

Similarly, the nitrogen oxides emission problem does not appear to be beyond solution. Relatively little has been done in the area of research on control of diesel emissions because of their present low market penetration and their ability to meet present emission standards essentially without emission controls external to the combustion chamber. In small diesel passenger automobiles, such as the VW Rabbit, NOx levels either meeting or closely approaching a 1.0 gram-

per-mile standard have been achieved without the use of such NOx control techniques as exhaust gas recirculation. Tr-III, p. 11. In larger automobiles, GM states that a level of 1.5 grams-per-mile of NOx is achievable with its 350 V-8 diesel. Tr-II, p. 127. Further, both the recently passed House and Senate amendments to the Clean Air Act provide for some type of NOx waiver for diesel engines. Ford states that its PROCO alternative has the capability to achieve the 1.0 NOx standard without encountering the unregulated pollutant problems to the same extent as diesels. Tr-II, pp. 36, 42. The Honda CVCC approach appears to offer significantly better emission control potential than the homogeneous charge engine, without associated unregulated pollutant problems. DN-28-03, Attachment, p. 100. Therefore, the Department has concluded that control of NOx emissions down to approximately 1.0 gram-per-mile will not present an insurmountable barrier to the increased use of alternative engines, although further development work may be required. See Tr-I, p. 93 (Dr. Sawyer).

The magnitudes of the problem presented by the unregulated pollutants emitted from the diesel and the PROCO and of the potential for reducing those emissions are presently unclear. The particulate emissions from diesels are of concern to EPA because of the potential significant contribution to air quality control regions' particulate problems. EPA is studying the total mass and other aspects of diesel particulates, but as yet no firm guidelines on allowable diesel particulate emissions have been set. Control of diesel particulates, if needed, is expected to be a formidable technical task. See Docket Number FE-76-01-GR-17.

For the reasons specified above, and particularly because the Department desires further information on health effects the Department has not included alternative engines in the analysis forming the basis for maximum feasible average fuel economy projections. The foregoing disposition of the "alternative engine" issue does not preclude the Department from including the use of such engines in projections of maximum feasible average fuel economy in a subsequent proceeding to amend the 1985 standard.

One final point with respect to future use of the diesel engine deserves further discussion. Up to the present, the use of diesel engines has generally been confined to luxury automobiles such as the Mercedes and Peugeot. Recently, Volkswagen and General Motors have begun implementation of that engine by dieselizing an existing engine, rather than designing a completely new engine. In view of past applications of the diesel engine, it would not be surprising if the new dieselized versions of the VW and GM engines were marketed as luxury items at a high price mark-up, higher than that justified by the additional cost alone. If this were done, this fuel efficient technology might not get the fair market test which it deserves, because of the high price differential.

Volkswagen has not adopted this approach. Rather, it has offered its diesel engine as a \$170 option in the Rabbit (Tr-III, p. 18), and all indications are that the diesel version is selling extremely well, both in the United States and in Europe. Persistent rumors have circulated that the General Motors diesel would be offered at an extremely high mark-up, of up to \$1,000. Tr-II, p. 110. This would raise serious questions as to the adequacy of the market test which the GM diesel would receive, if those rumors are in fact true. See Tr-II, p. 111 (GM). Despite the differences in size between the VW and GM engines, the Department would be hard pressed to understand such a large price difference between the two engines. See Support Document, Doc. 3, App. B.

#### *8. Improved spark ignition engines.*

The Support Document projected that a fuel economy improvement on the order of 10 percent is achievable through improvements to the conventional spark ignition engine. The use of an integrated electronic control unit for spark advance, fuel metering, and exhaust gas recirculation, optimization of combustion chamber, intake system, and valve timing, and the use of knock sensing and fuel injections were identified as methods for achieving the improvement. See Support Document, Doc. 2, Vol. I, pp. 2-16, 3-7. The percent improvement attributable to each of those options was not specified, although it was stated that 2 percent of the total was assigned to

fuel injection, with the remaining 8 percent divided among the others. Id., 3-7.

The Support Document also identifies other spark ignition engine improvements that could occur as a result of that Document's downsizing methodology. As vehicles were downsized, smaller engines were projected to be used in those vehicles, in order to maintain horsepower-to-weight ratios. However, in selecting among a manufacturer's existing engine line, it was anticipated that in those cases where a choice among existing engines was possible, the manufacturer would select the more efficient one and phase out the least efficient. This procedure would result in an improvement in average engine efficiency of 8 to 13 percent. See Support Document, Doc. 2, Vol. 1, p. 3-8.

The Support Document noted further that several of the technological changes to engines for fuel economy improvement might also be used to control engine exhaust emissions. The dual benefits of such engine and emission control technologies is explicitly recognized. It is necessary to avoid double counting of benefits, however, and since the automobile companies and the Environmental Protection Agency (EPA) have generally treated the electronic control unit as part of the emission control system, this analysis is revised accordingly to make it consistent. DN-18, p. 20 (GM); DN-15, Doc. 1, p. 17 (Ford); "Analysis of Alternative Motor Vehicle Emission Standards," Docket FE 76-01-GR-17, App. A. Therefore, no separate fuel economy benefit was attributed to the use of electronic control units.

The 2 percent fuel economy improvement assigned to fuel injection was confirmed by Ford, and no participant in the proceeding suggested a lower number. Id., Doc. 1, p. 17. Bendix, the major domestic manufacturer of these units, claimed a 15 percent fuel economy benefit, adjusting for comparable emission and horsepower levels. DN-27B, p. 2. Bendix projects the costs of the unit, including the previously discussed electronic control unit and sensors, to be less than \$100, about \$15 more than the advanced carburetor it would be likely to replace. Several model types now in production employ fuel injection. See 1977 EPA FEA Gas Mileage Guide.

It appears likely that the precise improvement achievable through the use of the remaining engine improvement techniques will vary from manufacturer to manufacturer, depending on the efficiency of engines presently in use. AMC expressed "no disagreement" with the originally assigned improvement, which was 10 percent. DN-14, p. 1. Chrysler projected up to a 3 percent fuel economy improvement for redesigned cylinder heads, and a total of 7 $\frac{1}{2}$  percent for engine control optimization. DN-30, 10, 44. Ford did not address the issue except for the impact of electronic control unit.

Therefore, it appears that a fuel economy improvement rising from 2 to 10 percent, depending on the manufacturer, is achievable by improvements to spark ignition engine efficiency, even beyond that associated with the use of the best of present engines. In the case of the manufacturers with the most efficient engine lines, the 2 percent fuel injection benefit would be available, as a minimum, since present domestic automobiles use that technology only to a negligibly small extent. In the case of the manufacturers with the least efficient engines, even selecting the most efficient engines in their lines would not result in the application of optimally efficient engines. Further techniques would be available to those manufacturers to achieve up to the 10 percent improvement in fuel economy projected in the Support Document.

The Department's assessment of the fuel economy improvements due to improved engines in 1981-1984 is that the detailed matching of specific engines with vehicles in specific inertia weight classes as identified in the Support Document is valid, and that the various engine and emission control technologies discussed above can be used to maintain the fuel economy resulting from that matching process while emission standards are tightened. See Section III, C, however, for further discussion of the relation between fuel economy and emission standards.

A specific engine efficiency improvement device not included in the previous discussion is the variable displacement engine. This concept involves the use of an electromechanical system which deactivates some of the engine's cylinders during those operating modes which require less

power, such as idle, light acceleration, cruising and deceleration. Eaton Corporation, the developer of this technology, projects fuel economy improvements of 10 to 40 percent with its units, depending on the engine operating mode. Some fuel economy benefit would accrue during all operating modes except moderate to heavy acceleration. Ford, which is the automobile company most actively pursuing the implementation of this technology, cites fuel economy benefits to date of 3 to 7 percent on the EPA composite driving cycle. DN-15, Doc. 1, p. 17. It should be noted that this technology has been applied to certain prototype alternative engines, in addition to conventional engines. Tr-II, p. 39.

#### 9. Building "captive imports" domestically.

Section 503 of the Act provides that for purposes of determining compliance with fuel economy standards, the fuel economy ratings of domestically manufactured automobiles may not be averaged after model year 1979 together with automobiles more than 25 percent of whose cost is attributable to value added outside the United States and Canada. Ford, GM, and Chrysler each have subcompact passenger automobiles which fall in the latter category. Thus, if those "captive import" passenger automobiles were manufactured in the United States in the future, they could be included in those manufacturers' averages, resulting in some increase in that average. All three manufacturers disclaimed having present plans to do this, but none claimed this to be infeasible. Therefore, this also presents a possible method for complying with the fuel economy standards, while concurrently increasing domestic employment.

Volkswagen has noted that this provision has the anomalous effect of discouraging a foreign manufacturer from building production facilities in the United States. While it was adopted to prevent an exportation of jobs, the provision, as applied to a foreign manufacturer, discourages the importation of jobs. Although this impact may well not have been intended by Congress, it follows directly from the statutory language and the Department is powerless to change the result administratively. However, Volkswagen, or any other foreign manufacturer, may manufacture automobiles in the United States as long as more

than 25 percent of the value added content is foreign, and still average those vehicles together with their imported fleet.

#### 10. *Mix shifts.*

A significant fuel economy benefit can be achieved through the use of marketing strategies to increase the sales of smaller automobiles. In addition, some improvement can result from mix shifts even in the absence of any initiatives by the manufacturers, if increases in demand for the smaller market class automobiles can be projected. Such a trend is projected by Ford and Chrysler, relying in part on long-term trends toward the smaller market classes. Tr-II, p. 270 (Chrysler) and DN-15, Doc. I, p. 11 (Ford). See also Tr-I, p. 89 (Dr. Sawyer), DN-13, p. 4 (Environmental Defense Fund), and DN-21, Attachment (Public Interest Economics Foundation), the latter with respect to the issue of the feasibility of "forcing" mix shifts.

Ford argued that requiring the manufacturers to take actions to shift the mix of passenger automobiles away from that mix which would result from "free market" forces is beyond the Department's statutory authority. DN-15, Doc. IV, p. 3-8. The Department rejects this position as inconsistent with the "maximum feasible" requirement and the legislative history of the Act.

The legislative history of S. 1583, the Senate version of the fuel economy provisions, contains a clear indication of the Congressional intent with regard to the role of market forces and mix shifts in establishing the standards. In explaining the standards set in the bill, the Senate Commerce Committee stated:

a DOT/EPA report estimated that up to a 63-percent improvement in new car fuel economy could be achieved by 1980. This 63-percent gain was based upon maximum technological improvement through 1980 (weight reduction, aerodynamic drag reduction, transmission improvement, engine resizing and optimization) and a moderate shift in sales mix to 35 percent large and intermediate cars, and 65 percent compact and subcompact cars. Such a shift is within the current capability of the auto industry. By calling for a 50-percent improvement, this legislation provides ample cushion for unforeseen contingencies.

S. Rep. No. 94-179 (94th Cong., 1st Sess.) at 10. The Committee thus seems to have implicitly accepted the necessary or propriety of requiring such a mix shift to achieve the standards it set. In selecting a 50 percent instead of 63 percent improvement, the Committee did not reject any particular identified means of improving fuel economy. It simply provided a cushion against all types of contingencies. One contingency would be the failure of the assumed mix to sell. Another would be the failure of technology to develop at the assumed pace or to yield the anticipated improvement. The Committee's acceptance of the shift is made even clearer a few pages later in the Report:

Figures obtained from the Recreational Vehicle Industry Association indicate that there will be approximately 2 million travel trailers (homes-on-wheels) and 1.2 million camping trailers (fold-down types) in the hands of the American public in 1976. There are also 3.2 million families in the United States of 7 or more persons. If reasonable assumptions are made about yearly growth in the number of trailers, auto fleet turnover rates, etc., a conservative estimate of the towing and large family demand for big cars is something under 1 million per year over the next few years. *Even if the most drastic sales mix shifts necessary to meet the 1980 goal occur*, there will still be at least 1 million full size and luxury cars produced, clearly a sufficient number to meet the demand. Special problems could arise in the 1980's if the automakers insist on sticking solely to the internal combustion engine to meet the 1985 goal. However, diesel towing packages could be an answer to this problem, with no sacrifice in fuel economy. Also, light duty trucks, which are not subject to the 1980 or 1985 goals, could meet a significant portion of towing demand.

*Id.* at 14. The Committee clearly anticipated shifts in both sales mix and the type of vehicles offered for given uses. The 1 million figure was apparently obtained by multiplying the 10 percent large car figure used in the mix shift assumed in the DOT/EPA report and 10 million, the total number of passenger automobiles sold annually in the mid-1970's.

The extent of the sales mix shift the Committee contemplated as being possibly required to meet the 27.5 mpg standard, and the means that would be necessary to achieve it, are apparent from the DOT EPA report cited by the Committee. The potential 63 percent improvement was under "Scenario D," which required:

Steady technological improvement through the 1980's . . .

. . . with 1980 sales mix assumed at 10 percent large cars, 25 percent intermediates, 25 percent compact, and 40 percent subcompact.

*Potential for Motor Vehicle Fuel Economy Improvements: Report to the Congress*, U.S. Department of Transportation and the U.S. Environmental Protection Agency, October 24, 1974, at 66. The DOT EPA report also states that:

. . . sales shift in Scenario D would probably not occur "voluntarily" because of market demands for larger cars, i.e., Scenario D would probably require more substantial government pressure on manufacturers and/or consumers than would be the case under Scenarios B and C.

*Id.* at 64, and that:

Shift in mix was limited to that possible given the availability of production facilities, but no limitations due to consumer demand were assumed. Some of the technological options considered require further development; however, their implementation is deemed feasible by 1980. Technological options were screened for consumer acceptability prior to their inclusion, but once selected, eventual 100 percent application to the new car fleet was assumed.

*Id.* at 4. The Committee thus explicitly recognized that major shifts in sales mix could be required to meet the standards and implicitly recognized that these shifts might not result voluntarily but could require government pressure on the manufacturers and or consumers. The only limit on the mix shift that was contemplated was that which was imposed by the availability of production facilities; consumer acceptance was considered only with respect to technological improvements.

The Senate Committee apparently realized that this process would not be without some risks. First, as stated above, it reduced its standard to require only a 50 percent increase, rather than a 63 percent increase, to provide "ample cushion for unforeseen contingencies" (emphasis added). Second, the bill itself contained provisions to protect the manufacturers from an "unanticipated retail sales mix" beyond the control of the manufacturer in section 508(b)(3):

(3) The Secretary may waive or modify a civil penalty determined under subsection (a)(1) of this section if, and to the extent that the manufacturer involved demonstrates to the Secretary that its failure to comply with an applicable average fuel economy performance standard resulted from an unanticipated retail sales mix among different classes of automobiles or light duty trucks, as appropriate, manufactured by it and that such mix was beyond the control of the manufacturer: Provided, That the Secretary may not waive or modify any such penalty unless the manufacturer involved demonstrates to the Secretary that it included in its automobiles or light duty trucks, as appropriate, all of the improvements to increase fuel economy that were technologically feasible, and that it made a good faith effort to produce or stimulate a retail sales mix that would have resulted in compliance with the applicable standards, through advertising, pricing practices, availability of models, and any other means.

In other words, a manufacturer could be let off, but only if it had done everything it could to achieve the required product sales mix.

Finally, the bill provided some additional protection for the manufacturers by allowing for recoupment of penalties in the event of subsequent overachievement (section 508(c)) and for modification of the standards by the Secretary if new information indicated the standards could not be achieved (section 504(b)). It should be noted, however, that downward revision of the 1980 and 1985 standards would be subject to Congressional approval (section 504(b)(2)).

To summarize briefly, the Committee apparently recognized that a major sales mix shift away from current levels would be necessary to meet the standards, and that achieving this shift would require pressure from the government on the manufacturers and by the manufacturers on the consumers. It realized there were risks involved in this, and tried to reduce them first by setting the standards below the maximum achievable level, and then by allowing an escape clause for the manufacturers if the consumers did not accept the sales mix necessary to meet that reduced level after every good faith effort to change their preferences. Finally, it provided a mechanism for recoupment of penalties, and for revision of the standards downward, subject to Congressional approval, if the standards could not be met.

There is only one statement in the report which could be claimed to limit this virtual requirement of significant sales mix shifts:

The fuel economy standards approach adopted in this legislation leaves maximum flexibility to the manufacturer to meet the standards. This should result in a more diverse product mix and wide consumer choice. In meeting the fuel economy standard applicable to any given model year one manufacturer could choose new technology, another could choose to shift more rapidly to lighter weight vehicles, and still another could choose some combination of the two.

S. Rep. No. 94-179, *supra*, at 6. Arguably, the "more diverse product mix" language limits the extent to which any mix shift could be pushed. However, this argument must be rejected because the language already states that the standards adopted in the bill, which include the significant mix shifts, will satisfy this concern. Rather than limiting the magnitude of the mix shifts necessary, this language seems to indicate that the approach of letting each manufacturer choose its own approach to meeting the standards will result in a more diverse product mix than the alternative legislative solutions that were considered, such as mandating the procedures to be used for forbidding the sales of vehicles getting below a specified fuel efficiency rating.

The legislative history of H.R. 7014, the bill containing the House version of the fuel economy provisions, is less specific in its treatment of product mix and market demand. The first references were in regard to the process of setting the 1980 standards:

The DOT-EPA study of the potential for motor vehicle fuel economy improvement indicates that with technological improvements and use of smaller engines but without any shift to smaller cars, sales-weighted fuel economy of automobiles sold in 1980 could reach 20.3 MPG in 1980 (a 45 percent increase above 1974). If the maximum feasible shift to small cars occurred, sales-weighted fuel economy could reach 22.2 mpg in 1980 (a 59 percent increase over 1974). The study assumed, for purposes of these projections, that these levels of fuel economy could be achieved without any reduction in the stringency of the statutory hydrocarbon (HC) and carbon monoxide (CO) emission standards which are scheduled to be effective in 1978.

H.R. Rep. No. 94340 (94th Cong., 1st Sess.) at 86, and

The Committee, in setting the statutory average fuel economy standards for passenger automobiles, gave careful consideration to the EPA-DOT study's conclusion that a 63 percent improvement in average fuel economy levels between 1974 and 1980 (22.2 MPG) was the maximum potential improvement in average fuel economy. This projection was on an industry-wide basis and was not a level which each manufacturer necessarily could be expected to reach; it assumed the maximum shift to smaller cars which was technologically feasible, and it appeared to assume that there would be no reduction in fuel economy associated with more stringent emissions standards. The Committee, in translating this industry-wide potential average fuel economy projection into an average fuel economy standard which each manufacturer must attain, was of the view that any emission standards likely to be in effect in 1980 would involve at least a 5 percent reduction (1 MPG) in average fuel economy in 1980. In addition, because of the likelihood that in that year a number of smaller manu-

facturers are likely to "overachieve" (have an average fuel economy in excess of the industry-wide target), the Committee felt it could set a standard for each manufacturer which was somewhat lower than the industry-wide target. In light of these considerations, the Committee set the average fuel economy standard for each manufacturer at 20.5 MPG for model year 1980. The model year 1978 and 1979 standards were set at 2 MPG and 1 MPG, respectively, below the 1980 standard.

*Id.* at 88.

Taken together, these two passages leave no doubt that the Committee based its standards on the improvement projection that included the significant product mix shift, as discussed above, and thus also implicitly accepted the possibility that mix shifts would be required to meet the standards. *Id.* at 87. This seems particularly clear from the second statement. The Committee started with one figure and made two adjustments in it to obtain the standard specified in the House bill. Since the starting figure was based on the mix shift assumed in the DOT-EPA report and since neither of the adjustments involved elimination of the mix shifts, the final figure must be based upon those shifts too.

The only other mention of product mix or consumer demand is the following:

... Committee recognizes that the automobile industry has a central role in our national economy and that any regulatory program must be carefully drafted so as to require of the industry what is attainable without either imposing impossible burdens on it or unduly limiting consumer choice as to capacity and performance of motor vehicles. The Committee has devised the regulatory program, which appears in Part A of the bill,...

*Id.* at 87. Again, it is arguable that the "without... unduly limiting consumer choice" language could limit the extent of any market shift. However, it is again clear that the Committee believed that the program it had proposed would satisfy this constraint, i.e., that the mix shifts contemplated by the standards would not unduly limit consumer choice. Further, this passage proscribes only "unduly limiting consumer choice". (Emphasis added.) That is, consumer

choice may not be limited unless it can be justified by resulting improvements in fuel economy.

Finally, the House bill did not contain any provisions allowing modification of any penalties incurred because of unanticipated sales mix. However, the bill contained provisions allowing both the carry-back and carry-forward of penalty credits for overachieving in any model year (section 508(a)(3)) and modification of the standards, subject to Congressional disapproval for decreases below 26.0 mpg or increases above 27.5 mpg.

The legislative history indicates that both houses of Congress expected that significant shifts in product mix might be required to meet the standards they were setting, and that there would have to be some efforts to induce the market to achieve these shifts. The manufacturers have a panoply of marketing measures, including pricing, advertising, and dealer incentives, to aid them in such efforts. Both houses of Congress provided some mechanism for reducing penalties if the standards could not be achieved, with the Senate specifically providing for the effects of a failure of a manufacturer to succeed in inducing the market to accept the required mix.

The Act as finally adopted does not contain the Senate unanticipated mix provision, but is basically identical to the House bill in its penalty recoupment provisions. The fact that the Senate provision was eliminated may indicate either that a tougher standard was finally agreed to by the Senate, or that the recoupment and standard modification procedures were believed adequate to handle failures to achieve required product mixes. What is clear is that free market demand and product mix in no way determinative of the standards finally adopted. If consideration of non-free market mix shifts is appropriate in establishing the 1980 standard, it must also be appropriate for the 1981-84 standards, which are required to result in "steady progress" over the 1980 base toward the 1985 target.

#### 11. Combining the improvement projections.

To determine the technologically feasible level of average fuel economy for each of the domestic manufacturers, it is necessary to combine the percent improvements assigned to each of the technological options discussed in section III.A.

according to the phase-in schedule set forth in Tables 5.5-5.8 of the RSP. The methodology in the Support Document assumed (Doc. 2, Vol. 1, p. 2-23), and the manufacturers did not seriously dispute, that the improvement options, including weight reduction, transmissions, engine improvements, and alternative engines could be combined in a straight forward arithmetically additive manner. Question 1.D of the April 1 special order directed the automobile manufacturers to specify which, if any, of the options for improving fuel economy are not additive, to quantify any negative synergistic effect, and to submit any data relevant to this issue. GM responded that the options it had evaluated are additive. DN-18, p. 11. Ford presented a table showing areas of judged incompatibility between various options but presented no supporting data or rationale. DN-15, Doc. 1, p. 14. Most of the areas of questionable additivity involved alternative engines. Chrysler expressed the opinion that the various options are either "additive or very nearly additive" and stated that it relied on the assumption of additivity for its own internal projections. DN-32, p. 12. Chrysler expressed uncertainty about the options related to engine speed, such as some accessory improvements and over-drive transmissions, but was unable to quantify this effect. Therefore, the assumption of additivity has been retained. Options which are mutually exclusive, such as improved automatic and manual transmissions, are of course not additive.

Based upon the technologically feasible weight reduction only, the Department projects that General Motors, Ford, Chrysler, and American Motors will be able to achieve 21.6 mpg, 21.6 mpg, 22.7 mpg, and 21.2 mpg, respectively, by 1981, and 22.2 mpg, 23.0 mpg, 23.6 mpg, and 24.7 mpg, respectively, by 1985. Table 1 lists additional average fuel economy gains that can be achieved through the use of the other technological options.

### B. Economic practicability.

In considering the economic practicability of implementing the technologically feasible options in 1981-84, the Department examined several different schedules of standards based upon different sets of options. The sets ranged from one that was almost fully comprehensive to one that included only a select number of the options. Excluded from all sets were some spark ignition engine improvements, variable displacement engines, further weight reduction beyond that initially projected in the Support Document or submitted by the manufacturers, and domestic production of captive import passenger automobiles. Due to the lack of complete data for these options and their omission from the NPRM and Support Document, they have been excluded from further consideration in this rulemaking. Efforts will be made to supplement the Department's data base in these areas in future rulemaking proceedings.

TABLE 1

Acceleration reduction .....	10 percent
Automatic transmission with lockup torque converter .....	10 percent
Five-speed manual transmission .....	5 percent
Improved lubricants .....	2 percent
Reduced accessory loads .....	2 percent
Reduced aerodynamic drag .....	4 percent
Reduced rolling resistance .....	3 percent
Diesels (or equivalent alternative engine) .....	20-25 percent
Further weight reduction (additional material substitution and further downsizing, including front wheel drive) .....	5 percent
Improved spark ignition engines .....	2-10 percent
Variable displacement engines .....	3-7 percent
Turbochargers .....	0-15 percent
Domestic production of captive imports .....	0-4 percent
Mix shift to 10 percent large, 25 percent intermediate, 25 percent compact, and 40 percent subcompact .....	5 percent



The least comprehensive set was that underlying the schedule of standards suggested by Ford: 21 mpg in 1981; 22 mpg in 1982; 23 mpg in 1983; 24 mpg in 1984; and 25 mpg in 1985. Even though that was the highest schedule suggested by any manufacturer, the Department regards it as a low range schedule. It was rejected for several reasons. First, it would not satisfy the maximum feasible requirement. The manufacturers have available to them options that involve little or no engineering or marketing risk that in combination would be economically practicable and would enable them to exceed substantially Ford's suggested schedule. Second, the schedule would violate the requirements that the 1981-84 standards result in steady progress toward the 1985 standard which, unless changed by future rulemaking, is 27.5 mpg, not 25 mpg.

The Department also considered a high range schedule based on all of the options not excluded in the first paragraph of this section.

The Department believes that there are risks associated with substantial mix shifts notwithstanding the historical trend toward smaller passenger automobiles. While that trend may continue, there is no assurance that it will. For reasons including prestige, comfort, and sheer size, there continues to be a strong demand for midsize and large size passenger automobiles. This is true even though most of these automobiles offer no more seating capacity in terms of number of positions than some compacts. Further, as discussed below, the downsizing of passenger automobiles may at least temporarily slow the trend to small cars. Further, the Department lacked sufficient marketing data to justify a lesser shift toward small cars.

Given the overriding purpose of the fuel economy provisions in the Act to conserve fuel, the Department was concerned that the standards be set as high as possible, but not so high as to necessitate the manufacturers' using compliance methods that would result in a substantial sales drop. To the extent that the total passenger automobile population fails to turn over and renew itself at the usual pace because some owners retain their existing vehicles for an extra year or two, the projected fuel savings from a given fuel economy standard would not be fully realized. In addition, a substantial sales drop would have

a significant effect on employment in the automobile and related industries and would adversely affect the manufacturers' efforts to raise capital for further fuel economy improvements. See RSP, Chap. 13, Reference 27, Section E.

The Department concluded that the implementation of the schedule of standards resulting from this set was not economically practicable due to the risk posed by substantial mix shifts that a significant number of consumers might defer purchasing new passenger automobiles in 1981-84. Further, implementing all of the options in this set would result in levels of average fuel economy above those permitted under the steady progress requirement, since the 27.5 mpg level would be exceeded prior to 1985.

The Department is also concerned about the possible adverse environmental impacts associated with some alternative engines, notably the diesel. As discussed above, several commenters pointed out that particulate and PNA emissions of these engines may pose a health hazard. If the existence of a health hazard is confirmed by the Environmental Protection Agency, then regulation of those emissions will presumably follow. The stringency of those regulations and their effect on the fuel economy of the alternative engines is indeterminant at this time. As information from that agency and other sources clarifies this question, the Department will begin to consider whether to base fuel economy standards on the use of those engines.

For all of the foregoing reasons, the Department decided not to set the average fuel economy standards so high as to necessitate the use of all options within the limited period of 1981-84.

The Department also considered a medium range schedule of standards based on a less comprehensive set of technological options from which alternative engines and mix shifts had been excluded. In excluding these options as bases for determining the fuel economy standards under this set of options, the Department was particularly mindful that there will be substantial changes in passenger automobiles in the early 1980's due to changes in fuel economy and emission standards. In a later period of less product design and technological flux, the risk associated with mix shifts and alternative engines would be lessened.

The Department regards mix shifts and alternative engines, as well as the options excluded from the high range set of options, as constituting a safety margin for the manufacturers that choose to implement the medium range options to the extent set forth below. If the latter options do not yield the anticipated gains, despite the conservative assessments of those gains, the manufacturers may avail themselves of options in the safety margin. For manufacturers which do not wish to implement the medium range collection of options in the amount described below, these additional options represent alternative options which they can utilize. The Department notes that virtually every option excluded from the high or medium range sets of options will be used by at least one manufacturer and some by several. To the extent that these options are used, the manufacturers will not have to rely so much on the collection of medium range options. Further, all manufacturers can use marketing measures to encourage the purchase of the most fuel efficient vehicles within each carline.

The schedule for implementation of the various middle range technological options or improvements, which are set forth in Tables 5.5-5.8 of the RSP, reflect the differences in economic capability of the various domestic manufacturers. That implementation schedule is in no case more stringent than that in the NPRM Support Document. See Document 2, Volume 1. None of the manufacturers claimed that the proposed implementation schedule is impracticable. However, objections to specific cost assumptions in the Support Document were submitted by some manufacturers. Since these cost numbers affect the projected sales, employment and inflationary impacts of the standards, and thereby economic practicability, these objections have been carefully reviewed. However, the vagueness and unsubstantiated character of the assertions in the manufacturers' comments have impaired the usefulness of the submitted information, here as in the case of the technological issues discussed in section III.A.

General Motors, Ford, and Chrysler all objected to the projected capital investment requirement for downsizing of \$150-250 million for an annual production capacity of 400,000 automobiles. All stated that this figure was about

half the correct amount. DN-18, p. 18 (GM); DN-43, Att. II, p. 2 (Ford); and DN-30, p. 53 (Chrysler). Therefore, and in view of the fact that GM and Ford already have had substantial experience with implementing this technological option, the capital requirement for downsizing was revised to the \$400 million figure. GM and Chrysler both objected to the variable cost savings of \$200 assigned to downsizing, but neither submitted a different figure or a detailed critique of the Department's analysis. Ford's discussion of the savings resulted from the introduction of a new, small, future car line is consistent with the Department's assumption, when weight reduction and concurrent product improvements are separated. DN-43, Att. II, p. 3. Therefore, the originally projected savings in variable cost was retained. Chrysler's unquantified objection to the maintenance cost figure is also rejected. The Department's further evaluation of data supporting the original projection of a 35¢ pound maintenance cost saving reaffirms the original conclusion. See Support Document, Summary Report, p. R-2,  $\pm 3$ .

GM, Ford, and Chrysler raised similarly vague objections to the projected capital and variable costs attributable to material substitution. DN-18, p. 19; DN-43, Att. II, p. 4; DN-30, p. 54. Nevertheless, Chrysler conceded that the use of high strength steel would have no appreciable effect on variable costs. Detailed cost information on the use of aluminum and high strength steel was submitted by Alcoa and U.S. Steel Corporation, respectively. DN-27-D, DN-27-A. Both submissions supported the Department's original conclusion about the cost of light-weight material substitution. If components are selected from the lists of feasible material substitutions provided by these two companies, it is possible to achieve the weight reductions projected in the Support Document without increasing variable costs. Further weight reductions could be achieved at slightly higher cost. Similar objections were raised to cost savings attributable to reduced maintenance. However, as noted above, the Department's further study in this area fully supports the Support Document's projected relationship between weight reduction and reduced maintenance expense. This savings results from, as one example, the ability to use smaller tires

on lighter automobiles, thereby reducing replacement costs. GM failed to quantify or substantiate its claim that the lighter weight substitute materials would be more damage prone than present materials. DN-18, p. 22. The Department's analysis, together with the Alcoa and U.S. Steel submissions, supports the achievability of the assumed weight reduction by careful matching of a particular substitute material to the particular application desired. Furthermore, GM failed to address the savings associated with the improved corrosion resistance of aluminum or plastic substitutes. DN-27D, p. 2 (Alcoa). Therefore, the original maintenance costs savings estimate has been retained.

The costs associated with improvements in such areas as lubricants, accessories, aerodynamic drag reduction, and rolling resistance reduction are as set forth in Table 7.1 of the Rulemaking Support Paper. No contradictory information was submitted on these costs, in response to a specific question in the April 1 and April 21 special orders. DN-7, DN-28, Question II. A.

No manufacturer challenged the costs attributed to automatic transmission improvements. Chrysler, the only manufacturer to address the issue specifically, found the costs to be within "an acceptable planning range." DN-30, p. 55. For the purposes of the total cost calculation, the upper bound of the cost range for the four speed automatic transmission was used as a "safe" estimate. This probably overstates the total cost impact, since, as previously noted, it is likely that a variant of the three-speed transmission would in fact be used. Capital requirements associated with the four-speed unit are up to twenty times greater than those for the three-speed (less than \$10 million vs. \$200 million per standard production facility with a capacity of 500,000 units per year), since relatively inexpensive changes can be made to existing transmission production facilities to accommodate improvements to three speed units, while complete new plants are necessary to produce four speed units.

Reductions in acceleration performance were assumed to be achieved through the substitution of existing smaller displacement engines, up to the maximum level consistent with production flexibility at existing engine plants, at no in-

creased cost. These reductions could also be achieved through axle ratio changes, at negligible cost.

Total required capital expenditure to achieve the postulated fuel economy was generally within the range of planned expenditures for fuel economy improvement over the 1976-85 time period. DN-30, p. 52 (Chrysler); DN-15, Doc. I, p. 20 (Ford); p. 1-18, Economic Impact Statement (see sec. VIII, *infra*). However, it is not correct to treat this as a totally "extraordinary" investment required of the automotive industry in order to comply with fuel economy standards. Much of this expense is "integral to the normal cycle of product improvements" which the companies would engage in regardless of the standards. DN-30, p. 55 (Chrysler). The fact that improved fuel economy is itself a highly marketable attribute for passenger automobiles might force the companies to make many of the product improvements discussed in this notice, as a result of competitive market pressures regardless of the fuel economy standards. DN-15, Doc. I, p. 20 (Ford). Conceptually, this means that the automobile companies must, as part of each decision to change a significant component in a passenger automobile, take into account, and possibly reorient their product line in view of, the fuel economy requirements. Therefore, the capital expenditures discussed above have been adjusted to take into account "business-as-usual" reinvestment, which would occur even in the absence of any standards. A further discussion of this topic is contained in the RSP, Reference 27, Chap. 13.

The total cost increases are assumed to be reflected in increased new passenger automobile prices according to the formulas set forth in the Support Document. See Summary Report, p. A-27. Generally, the manufacturers did not object to the total or "bottom line" price changes generated by this methodology, although they did not necessarily agree with all of the details. See, e.g., DN-15, Doc. I, p. 21 (Ford). GM merely noted that price increases are determined by market forces, rather than some arbitrary cost pass through formula. DN-18, p. 24. The Department does not take issue with that statement, but some method must be used to assess price impacts, and no participant in the proceeding suggested a better alternative. Chrysler argued

that the methodology did not provide for recovery of the value of the investment itself. DN-32, p. 19. However, it appears that Chrysler has misunderstood the application of the methodology, since capital costs are assumed to be recovered by price increases tied to the rate of return on investment. The projected impact on new car prices, as shown in Table 8.1 of the Rulemaking Support Paper, is an increase of \$54 by 1985, as an industry average, relative to 1977 model year automobiles. When gasoline and maintenance savings are considered, net *savings* to the consumer of approximately \$1000 over the life of the automobile are projected. See Table 8.4, RSP.

The final impacts to be considered in the evaluation of economic practicability are the projected impacts on industry sales and employment. These impacts were projected by using the Wharton Automobile Demand Model. See Support Document, Summary Report, p. A-91. This model is one of the latest and most complex for projecting automobile industry sales and employment. See DN-15, Doc. I, Att. A, p. 176 (Ford); DN-30, p. 38 (Chrysler).

On the basis of this projection, domestic industry sales and employment would attain levels higher than present levels during the 1981-84 period, and would be approximately the same as would be the case if there were no additional costs attributable to fuel economy standards. A sensitivity analysis that assumes a 2 percent per year increase in automobile prices for the 1981-84 model years shows a small decrease in projected sales during those years and a small increase in subsequent years. Since the average change in car prices due to these fuel economy standards for those same model years is only 1 percent, the effect on sales is similarly small.

The Department has been unable to quantify the impact of such non-price changes as acceleration capability reductions and exterior downsizing. However, as discussed in section III.A of this section, these impacts are not expected to be severe. The Department has taken into account any possible adverse impacts in those areas by the provision of a "safety margin" of fuel economy improvement potential and in the discussion of uncertainties in section IV.

The industry generally argued that the uncertainty of consumer acceptance of more fuel efficient vehicles was a major concern in this rulemaking. Tr-I, pp. 19 (Ford), 50 (GM), 78 (AMC), and 104 (Chrysler). However, these statements appear to be more in the nature of fear of the unknown than the result of detailed study and analyses. See Tr-II, pp. 10, 23, 58, 62-64, 121, 146, 161. The Federal Energy Administration's own analyses show that it is the "manufacturer's response to the standards, rather than the consumer demand, that most influences new car fleet average fuel economy under a scenario of little or no market shift." DN-37, p. 2. The provision of a safety margin of technology permits a variety of manufacturer responses.

Improvements in automotive fuel economy, if unaccompanied by adverse impacts on other automobile attributes, are undeniably an aid to marketability. The technological options relied upon are not expected to have such accompanying detriments. Among these options, material substitution, and improvements in accessories, lubricants, aerodynamic characteristics, and rolling resistance are virtually undetectable by consumers, except with respect to price changes, whose impact has been accounted for above. Downsizing, while maintaining or even increasing vehicle interior roominess, has been accomplished without consumer rejection to date, in the case of General Motors' full-size automobiles. Although downsizing of all market classes has yet to be completed, it appears likely that purchasers of the largest size automobiles are the group most concerned about size attributes, and if they are willing to accept downsized vehicles, the purchasers of other market class automobiles would also accept them. With respect to automatic transmission improvements, it appears that past driveability problems with lock-up torque converters are near resolution, in view of some manufacturers near-term implementation plans. Acceleration performance reductions have been limited to those within the manufacturers' stated range of consumer acceptability. Turbochargers could be used to offset even those very modest acceleration reductions. Safety margin technology would permit flexibility in selecting compliance approaches which individual manufacturers find more salable than the ones projected in this

analysis. Further, it is likely that consumer acceptance of fuel efficient automobiles will increase as gasoline prices increase in the future. Therefore, the Department concludes that marketability constraints would not prevent the attainment, in an economically practicable manner, of the standards promulgated herein.

Thus, it appears that the total impact of the fuel economy standards established in this notice is relatively modest, certainly within the "economic capability of the industry." The Department concludes that compliance with these standards is economically practicable.

### *C. The effect of other Federal standards.*

The next step in calculating the manufacturers' maximum achievable fuel economy is an assessment of the impact of other motor vehicle standards on fuel economy. It is impossible at this time to predict with perfect accuracy even the level of these standards which will be in effect in the 1981-84 period, since all categories of these standards are either subject to future administrative action or are being reviewed by Congress. Nevertheless, for the purposes of this analysis, it is assumed that the applicable automotive emission standards will be those contained in the Administration proposal, i.e., 0.41 gram per mile hydrocarbons, 3.4 grams per mile carbon monoxide, and 1.0 gram per mile of nitrogen oxides, with waivers for nitrogen oxides up to 1.5 gram per mile for heavier diesel automobiles, if necessary. The same result would apply under either the House or Senate passed emission standard schedules.

The issue of the impact on fuel economy of various proposed emission standards was one of the more controversial ones in this proceeding. Much development work remains to be done in the emission control area between now and 1981, so projections in this rapidly progressing area necessarily involve some degree of uncertainty. However, the Environmental Protection Agency (EPA) has done extensive evaluation of the emission control systems now under development. The Department of Transportation has worked with the EPA in many of these studies.

Among the more recent of these studies are the February, 1977, report titled "Analysis of Effects of Several Specified Alternative Automobile

Emission Control Schedules Upon Fuel Economy and Costs," prepared jointly by the Departments of Commerce and Transportation, the Energy Research and Development Administration, EPA, and FEA; an EPA report dated April, 1977, titled "Automotive Emission Control—The Development Status, Trends, and Outlook as of December 1976;" and the May 19, 1977, "Analysis of Alternative Motor Vehicle Emission Standards." (All of these reports are in the General Reference section of the FE 76-01 Docket.) All three reports evaluate the optimal emission control systems for meeting emission standards at minimum fuel economy penalty, and all three conclude that little or no penalty need result from the use of optimal systems at the level of the proposed emission standards, as compared to 1977 levels. This conclusion was supported by those public interest representatives which participated in this proceeding and addressed the issue. DN-11, p. 8 (Mr. Thomas Austin); DN-12, p. 33 (Citizens for Clean Air); DN-13, p. 16 (Environmental Defense Fund).

As identified in Appendix A of the May 19, 1977 DOT-EPA-FEA report, fuel optimal systems to meet standards of 0.41 HC 3.4 CO 1.0 NOx may be expected to include a three-way catalyst, start catalyst, electronic spark advance, electronic control of exhaust gas recirculation, electronic air-fuel ratio control, oxygen sensor, high energy ignition, improved fuel metering, and a complex electronic control unit. In addition, the heavier cars, those weighing more than 3000 lbs., would have an air injection unit.

The passenger automobile manufacturers' views on the issue of emission standard penalties varied rather widely. Ford stated that the proposed emission standards could be achieved without fuel economy penalty through the use of three-way catalyst and full electronic control technology. DN-15, Doc. I, p. 24, Doc. III, p. 4, Tr-II, pp. 93-4. Volkswagen stated that compliance with the emission standards without a fuel economy penalty was possible. DN-28-01, p. 2. Daimler-Benz projected that compliance with the more stringent emission standards would produce a 3 to 5 percent *benefit* in fuel economy for the portion of its fleet which presently employs fuel injection. DN-28-05, p. 34.

On the other hand, the remaining domestic manufacturers all project substantial emission standards fuel economy penalties. GM claimed to have experienced fuel economy penalties as high as 20 percent on some prototype vehicles (DN-18, p. 27), although it admits that much development work remains to be done. Tr-II, p. 124. Chrysler projected a penalty of 12 percent (DN-30, p. 62, DN-35-01, Att. B, p. 27), but projects the use of a control system which is apparently less efficient than that assumed by EPA, DN-30, p. 61, in such areas as the use of electronic spark advance, port liners, and start catalysts. Further, Chrysler's projections were apparently based on actual test data from their 1977 California vehicles, adjusted by some arbitrary amount for future system optimization. These vehicles do not employ three-way catalysts and full electronic controls on which EPA's projections are based. Tr-II, p. 258. Likewise, AMC's projected fuel economy penalties were based on their present California technology, not the advanced system assumed by EPA. DN-14, p. 3. GM also assumes a control system less complex than EPA's by not including the use of such technology as electronic exhaust gas recirculation, electronic air-to-fuel ratio control, port liners, and start catalysts. DN-18, p. 27. GM remains hopeful that, given enough development time, the penalty could be eliminated. Tr-II, p. 124.

Ford notes that, even with the three-way catalyst, a clean up catalyst, and a full electronic system to meet the 0.41 HC, 3.4 CO, 1.0 NOx standard, it would expect a 2 percent difference in average fuel economy between the first and third year of the standards. DN-15, Doc. I, p. 15. The May 19, 1977 DOT-EPA-FEA report observes that:

The development of technology to control emissions and permit good fuel economy calibrations to be maintained is expected to take longer than just the development of technology solely for the purpose of controlling emissions. For example, the use of electronic controls which have the potential to be an important part of future low emission, fuel efficient systems will require the generation and analysis of significant quantities of new engine data in order to determine more optimum calibrations.

Thus, it appears that none of the manufacturers presented any evidence which would directly contradict EPA's findings in this area, and in fact some manufacturers supported the "no penalty" assumption. Therefore, it is concluded that compliance with the specified emission standards in the 1981-84 time period can be achieved with little or no fuel economy penalty, through the use of the advanced control technology postulated by EPA. In the technical analysis contained in the RSP, a fuel economy penalty of zero percent is used for all the 1981-84 models.

One other issue with respect to the emission standards was raised by AMC and Chrysler. Those two companies claim that an emission test procedure change recently proposed by EPA (41 FR 38674, Sept. 10, 1976) would, if adopted, adversely affect the derivative fuel economy data. DN-23, p. 2 and DN-30, p. 30. Chrysler projects a very small impact for this revision on fuel economy, to the order of 0.28 mpg. The change in question involves decreasing the magnitude of inertia weight class increments and modification of the road load horsepower requirements. The proposed changes are intended to permit dynamometer testing of vehicles at inertia weight and road load settings that are more representative of actual vehicle weight and road load, so that the resulting fuel economy value would be a more realistic estimate of on-the-road fuel economy. Since this test procedure change is merely a proposal, it is unnecessary to attempt now to quantify the precise impact of any test procedure revisions which EPA may ultimately adopt. It should be noted further that EPA presently believes that the revisions in question should not result in a systematic change in fuel economy data either upward or downward, but rather that the revisions tend to improve the overall accuracy of the data. DN-20, p. 2.

An adjustment is made to each manufacturer's projected fuel economy capability to allow for the added weight associated with Federal Motor Vehicle Safety Standards. To assure adequate crash survivability in the passenger automobiles of the 1980's, additional safety requirements will be necessary. Those requirements are anticipated to cause an estimated 1 percent fuel economy penalty. See RSP.

The Department has no basis at this time to project the existence of any other motor vehicle standards at a specific level. If these projections are proven erroneous by future events, and if the impact of those future standards would substantially reduce the safety margin provided in this notice, it may be necessary to reconsider the standards promulgated herein.

*D. The need of the Nation to conserve energy.*

As discussed in section II.B of this notice, this final consideration in establishing maximum feasible average fuel economy levels requires the establishment of fuel economy standards at the highest level consistent with the other statutory considerations.

When the four statutory considerations are considered together, the fuel economy levels achievable by the four domestic manufacturers, as derived from the above analyses, are as set forth in Table 2 below. These numbers are based on a 0 percent emissions penalty. For the reasons discussed in section III.E below, including consideration of the emissions standards, an adjustment is made in that section to Table 2.

TABLE 2

<i>Manufacturer</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>	<i>1984</i>
American Motors	22.2	22.6	23.1	24.7
Chrysler	23.8	25.1	26.3	28.1
Ford	23.4	24.5	26.1	27.0
General Motors	23.3	24.2	26.5	28.8

*E. Establishing the maximum feasible average fuel economy level.*

In determining maximum feasible average fuel economy, the Department cannot simply select the level achievable by the least capable manufacturer in each model year. Instead, an analysis along the lines of that set forth in pages 154-5 of the Conference Report must be carried out. That Report states:

Such determination should therefore take industry-wide considerations into account. For example, a determination of maximum feasible average fuel economy should not be keyed to the single manufacturer which might have the most difficulty achieving a given level of average fuel economy. Rather, the Secretary must

weigh the benefits to the nation of a higher average fuel economy standard against the difficulties of individual automobile manufacturers. Such difficulties, however, should be given appropriate weight in setting the standard in light of the small number of domestic automobile manufacturers that currently exist, and the possible implications for the national economy and for reduced competition associated with a severe strain on any manufacturer. However, it should also be noted that provision has been made for granting relief from penalties under Section 508(b) in situations where competition will suffer significantly if penalties are imposed.

It is clear from this admonition that in certain circumstances the standards must not be set at levels which every manufacturer will be able to achieve in every year. Rather, they should be set at some point above those levels. Whether and how far standards should be set above those levels depends on a balancing of the burdens placed on the manufacturers with lower achievable average fuel economy on one hand against the benefits of a higher standard on the other. This in turn requires an analysis of the impacts of civil penalties imposed on the manufacturers at a given standard level. Implicit in this analysis is consideration of the ability of a manufacturer to apply civil penalty "credits" from other years to reduce or eliminate a penalty and of the ability of the Department to compromise penalties where insolvency, bankruptcy, or substantial lessening of competition may occur. See section 508 of the Act. The latter possibility is especially significant in the case of American Motors, which has reported no taxable income over the past ten years and has suffered serious declines in its sales in the past year, DN-14, p. 6 and Attachments, and whose projected maximum achievable fuel economy is substantially less than its domestic competitors. See Table 2.

When this clarifying language in the Conference Report is applied to the projected maximum feasible fuel economy values for each manufacturer as set forth in Table 2, it becomes clear that in establishing these standards the "least capable" manufacturer should not be the limiting constraint in determining maximum feasible average fuel economy. From that table, it appears that

the projected maximum feasible level for AMC in the years 1981-84 ranges from approximately one to three miles per gallon less than that of the least capable of the "Big Three" in each of those years. In terms of the nation's petroleum import bill, the cost to consumers of setting the fuel economy standards at the level attainable by AMC as opposed to basing it on that attainable by the "Big Three" could be nearly half a billion dollars in 1983 alone. Against the benefit of avoiding that substantial cost through establishing higher standards, the Department must balance the potential civil penalty liability which AMC could be subject to, which could be up to \$145 per automobile sold in 1983. Further, the Department must consider AMC's present small market share of under 3 percent of the domestic market and its resulting relatively small impact on industry employment, and the possibility discussed in the previous paragraph that any civil penalty liability might be mitigated by the Department. In view of these considerations, the Department must not base its determination of maximum feasible average fuel economy on the single domestic manufacturer with the lowest projected fuel economy capability.

While the Department believes that the previous paragraph correctly applies the statutory criteria, it may paint a misleading picture of AMC's ability to meet fuel economy standards. First, as previously discussed, the projected fuel economy values in Table 2 are based on a limited class of available fuel economy improvement methods. AMC could adopt additional measures to improve fuel economy. Second, a number of further measures are available to relatively small manufacturers such as AMC to achieve major improvements in average fuel economy in a short time period. Among these are the discontinuance of sale of poor fuel economy model types and the purchase of high efficiency engines and other technology from outside sources. Both of these options require minimal capital investment and are readily implementable. The Department has no information on AMC's precise product plans over the next several years, but it appears that some significant initiatives is planned which would result in major fuel economy improvements for that company's automotive fleet. Recently, AMC's president predicted that their

corporate fuel economy average would achieve 27.5 mpg by the *early 1980's*. "Ward's Auto World," June 1977, p. 30, Docket Number FE-76-01-GR-16. AMC officers also testified that they expect the average fuel economy of their passenger automobiles to remain competitive with that of the other domestic manufacturers, and not fall significantly below that level, as the Table 2 numbers might indicate. Tr-II, p. 220. Thus, it appears that AMC's future average fuel economy levels may be significantly understated in the DOT analysis, and the resulting civil penalty impact correspondingly overstated.

The Conference Report clarification of the "maximum feasible" requirement also has implications for the "Big Three" manufacturers. Although the fuel economy improvement potentials of those three companies were found to be relatively close numerically, some significant fuel savings benefit could be achieved by setting the fuel economy standard at a level higher than that found to be achievable for the least capable of the three. The harm suffered by those companies as a result of a higher standard is measured by the magnitude of the civil penalties generated. If the calculation of manufacturer-specific fuel economy improvements in Table 2 is correct, and if each manufacturer improved its average fuel economy up to those levels in each year, no net civil penalty liability would result for the "Big Three" if the maximum feasible average fuel economy levels were established as follows: 23.3 mpg for 1981, 24.6 mpg for 1982, 26.1 mpg for 1983, and 27.4 mpg for 1984. At those levels, any civil penalty liability for those companies in one of the affected years would be offset by credits obtained for overachievement in prior or subsequent years. The only obvious adverse impact from adopting this approach would be possible bad publicity resulting from the failure to meet standards. In view of the fact that the Act's sanctions are monetary civil penalties, which can be offset from year to year, no major stigma would attach to single year noncompliance. In fact, the Act's unique enforcement scheme appears to be designed to create economic incentives for encouraging compliance rather than harsh sanctions for noncompliance. Therefore, the Department has concluded that any harm to the individual manufacturers from single year non-



compliance would be outweighed by the benefits of establishing "maximum feasible average fuel economy" at levels where these manufacturers would pay no net civil penalty, taking into account their ability to carry credits forward or back.

The Department has concluded that the emissions standards expected to be effective in the early 1980's can be achieved with little or no fuel economy penalty. The analysis of average fuel economy potential discussed above was predicated upon a zero penalty. It appears clear, however, that the engineering and manufacturing problems associated with the introduction of complicated emission control technology may well be substantial, particularly since these advancements will have to be implemented simultaneously with other new technology required to meet fuel economy and safety standards. Although the Department has already tried to ensure the soundness of its average fuel economy standards by making generally conservative conclusions at each step in its analysis, no allowance has yet been made for unforeseen contingencies that may arise due to the need for manufacturers to deal simultaneously with the diverse set of manufacturing requirements imposed by the various fuel economy, emissions, and safety standards that will become effective in the early 1980's, particularly in 1981. Allowing for such contingencies is consistent with the approach taken by the Senate Commerce Committee in establishing the 1980 average fuel economy standard in S. 1883. See S. Rep. No. 179, 94th Cong., 1st Sess. 10 (1975). More important, allowance of these contingencies will ensure that the manufacturers can produce and sell cars that meet energy, environmental, and safety needs of the Nation. It is important to recognize that one limitation on the rate of product innovation is the rate of consumer acceptance of that innovation. Finally, there are some uncertainties, particularly in the later years of the 1981-84 period, associated with the accuracy of the estimates of the average fuel economy to be gained from the combination of the various technological options.

In view of the factors enumerated in the immediately preceding paragraph, the Department has determined it to be prudent to adjust the no net penalty average fuel economy levels to 22

mpg for 1981, 24 mpg for 1982, 26 mpg for 1983, and 27 mpg for 1984. Based upon consideration of the domestic manufacturers, the Department has determined that these are the maximum feasible levels of average fuel economy for those model years.

#### IV. The Imports.

With the possible exceptions of downsizing, mix shifts, straight-line acceleration reductions, and domestic production of captive imports, the same technological improvement options apply to the imported passenger automobiles as to their domestic counterparts. Since the passenger automobiles produced in foreign countries generally start at a much higher fuel economy base, those passenger automobiles can generally meet any level of average fuel economy which the domestics can attain. However, the possible unavailability of the options listed above and the fact that the U.S. market may account for only a small portion of such manufacturers' total sales necessitate an analysis of the impact of fuel economy standards on the foreign manufacturers.

Total sales of imported automobiles has varied between approximately 15 and 20 percent of total U.S. sales for the past four years. The four largest importers in 1976, Toyota, Nissan (Datsun), Volkswagen, and Honda, accounted for approximately two-thirds of the import total. "Automotive News 1977 Market Data Book Issue," p. 70. Each of these four manufacturers either presently has or will have in the near future an average fuel economy exceeding the 1985 standard of 27.5 mpg. DN-9, p. 1 (Toyota); DN-28-03, p. 1 (Honda); DN-28-04, p. 5 (Nissan); DN-16, p. 2 (VW—projections exclude Rabbit). Therefore, the majority of the import market must only maintain or marginally improve their present average fuel economy levels to comply with these fuel economy standards. Another group of importers, accounting for nine percent of import sales, are presently either meeting the 1985 standard or are in close proximity of that goal. This group includes Subaru, and the captive import fleets of Chrysler and GM. See 1977 EPA FEA Gas Mileage Guide, Second Edition. Of the remaining manufacturers, which account for a total of slightly

more than 20 percent of all imports, Volvo, Daimler-Benz, and British Leyland are the largest importers which may face difficulties in meeting a fuel economy standard of 27.5 mpg. Volvo and Daimler-Benz each account for approximately 3 percent of the import total, with British-Leyland accounting for nearly 5 percent.

Volvo projects that it could achieve an average fuel economy level not higher than 24.5 mpg by 1985. DN-28-02, p. 9. This level of fuel economy would result in the imposition of a civil penalty of \$150 per passenger automobile sold in the U.S. Since Volvo presently sells its passenger automobiles in the \$7,000 to \$10,000 range and since demand in that price range is relatively inelastic, the added cost would not be likely to reduce sales substantially. Furthermore, NHTSA believes that it may be possible for Volvo to achieve better fuel economy than it has projected. For example, the Volvo projection is apparently based on the assumption that no weight reduction is achieved, although its 244 model weighs nearly 400 pounds more than a comparable Audi 100LS. See DN-28-02, p. 9 and "Automotive News," supra, at 76-7.

Daimler-Benz projects being able to attain levels of fuel economy close to those projected for the domestic manufacturers (DN-28-05, p. 32), primarily by achieving a diesel market penetration of over 60 percent by 1980. DN-10, p. 8. This projection is also based on relatively little weight reduction. For example, Daimler-Benz projects that by 1985 its two-seater sports model will be in the same or a higher inertia weight class as the GM "hypothetical scenario" projects for large-size six-seater passenger automobiles. DN-28-05, p. 31 and DN-18, p. 13. Even if Daimler-Benz' projections reflected the maximum fuel economy improvement achievable by that company, the civil penalties resulting from noncompliance with the fuel economy standards would likely be less than those mentioned above with respect to Volvo and would have a negligible impact on sales of passenger automobiles whose prices are in the \$10,000-\$20,000 range.

British Leyland's present product mix is split between relatively inexpensive two-seater sports cars and luxury cars in the Mercedes price range.

The small sports cars are highly inefficient even by present standards. For example, the MG Midget and Triumph Spitfire weigh about the same as a Volkswagen Rabbit, yet the Rabbit has roughly 50 percent more horsepower and 25 percent better fuel economy. The Toyota Celica weighs 200 pounds more and has 50 percent more horsepower than the MG-B, yet the Toyota has about 18 percent better fuel economy. See "Automotive News," p. 76, and 1977 EPA FEA Gas Mileage Guide. Therefore, it seems likely that substantial improvements must be made to the smaller British Leyland products just to be competitive in the U.S. market. If such improvements are made, the British Leyland average promulgated level would be close enough to the standards promulgated herein to allow any required civil penalties to be passed on to consumers of the luxury passenger automobiles which are responsible for bringing down their average.

In summary, it appears that the manufacturers of the less expensive import passenger automobiles are already in compliance with the applicable fuel economy standards through 1985, or are close to that level now and can readily achieve compliance. The manufacturers of the more expensive imports may face some difficulties in meeting the standards. However, if those difficulties prove to be insurmountable, the manufacturers will incur civil penalties that will be small in comparison to the price of their passenger automobiles. Therefore, and in view of the Congressional admonition against basing these standards on the least fuel efficient manufacturer (see pages 154-5 of the conference report on the Act, S. Rep. No. 94-516, 94th Cong., 1st Sess. (1975), and section III.E of this notice), it is concluded that the establishment of these standards is not constrained by the capabilities of these import manufacturers. A more detailed discussion of the capabilities for improving fuel economy of these manufacturers is contained in Appendix E of the Rulemaking Support Paper. Accordingly, the Department has determined that the maximum feasible average fuel economy levels based upon consideration of domestic and foreign manufacturers are the same as the levels set forth at the end of section III.E.

## V. The "steady progress" criterion and setting the standards.

The final step in the standard-setting process is the application of the "steady progress" criterion. As discussed in section II, this provision requires that the standards increase each year, that all standards fall between 20 and 27.5 mpg, and that none of the resulting annual increases be disproportionate to the other increments. The Department has determined that the maximum feasible levels of average fuel economy specified at the end of Section V meet each of these tests and therefore will result in steady progress toward the 1985 standard of 27.5 mpg. Therefore, average fuel economy standards are: 22 mpg for 1981; 24 mpg for 1982; 26 mpg for 1983; and 27 mpg for 1984.

## VI. Additional comments on the NPRM.

Most substantive comments received relating to the establishment of 1981-84 fuel economy standards have been discussed above, primarily in section III, as they relate to the development of the standards. However, certain additional comments on the NPRM deserve further discussion.

The single point raised most frequently in the rulemaking proceeding by the automobile industry did not relate to the technological feasibility or economic practicability of any particular level of average fuel economy, but rather involved the uncertainties inherent in the establishment of these standards. Among the uncertainties raised by industry were the precise fuel economy improvements achievable with the various items of technology, consumer acceptance of the more fuel efficient automobiles to be produced in the future, the impact of future motor vehicle standards in areas other than fuel economy, and the state of the national economy over the next eight years. Tr-I, p. 106 (Chrysler); Tr-I, pp. 53-58 (GM); Doc. IV, pp. 17-35 (Ford). The manufacturers who were unable to relate the alleged areas of uncertainty to any particular quantified impacts on sales or to any particular levels of average fuel economy standards. The Department recognizes that areas of uncertainty exist in this proceeding, although not fully agreeing with the manufacturers' assessments of the magnitude of the resulting risks, particularly in the technology area. But cf. Tr-I, p. 53, where GM characterizes

the latter uncertainty as "relatively small." The Department also recognizes that in making projections as to future events and capabilities it is not appropriate to engage in a "crystal ball inquiry." *Natural Resources Defense Council v. Morton*, 458 F. 2d 827, 837 (D.C. Cir., 1972). Nevertheless, the Act, in requiring that 1981-84 model year fuel economy standards be established by July 1, 1977, necessarily contemplates that standards will be established on the basis of less than perfectly certain information. Nor does the law require such certainty, so long as projections rest on a rational basis. See generally *Ethyl Corp. v. EPA*, 511 F. 2d 1, 28 (D.C. Cir. 1976); *National Asphalt Pavement Association v. Train*, 539 F. 2d 775, 7834 (D.C. Cir. 1976); *Reserve Mining Co. v. EPA*, 514 F. 2d 492, 507 n. 20 (8th Cir. 1975); *Society of the Plastics Industry v. OSIIA*, 509 F. 2d 1301, 1308 (2d Cir. 1975); *Amoco Oil Co. v. EPA*, 501 F. 2d 722, 741 (D.C. Cir. 1974); *Industrial Union Department v. Hodgson*, 400 F. 2d 457, 474 (D.C. Cir. 1974). This is especially true in a regulatory program relating to a crucial national need such as energy conservation. *Mobil Oil Co. v. FPC*, 417 U.S. 283, 318 (1974).

Substantial efforts have been made to account for the uncertainties involved in establishing these fuel economy standards. For example, as noted in section III, many of the projections of achievable fuel economy improvements are based on conservative estimates of achievable potential. Further, a safety margin of improvement potential is provided to compensate for any unforeseen contingencies. In addition, it is highly likely that some of the uncertainties inherent in this proceeding will operate to the manufacturers' advantage. For example, future technological developments may lead to greater fuel economy improvements than even the most optimistic of the projections made by the Department.

Given that the Department is required to set standards in an area of some uncertainty, it is appropriate to compare the consequences of erring on either the low or the high side in our judgments. This balancing of risks is quite similar to that conducted by the court in *International Harvester Company v. Ruckelshaus*, 478 F. 2d 615 (D.C. Cir. 1973), involving the EPA Administrator's 1975 automobile emission stand-

ards suspension decision. If the Department's projections err on the low side, one obvious consequence is the lost opportunity to conserve energy, the significance of which needs no further discussion. A less obvious consequence is the removal of the "technology forcing" effect of a strict standard. "Union Electric Co. v. EPA," 427 U.S. 246 (1976). Stringent fuel economy standards are likely to encourage the automobile industry to pursue the development and refinement of technology which can reduce fuel consumption. Standards set at easily achievable levels provide no incentive to pursue the development technologies, such as alternative engines, which have substantial fuel economy improvement potential but which may never reach the market in large numbers unless additional technological refinement is accomplished. DX-37, p. 2 (Federal Energy Administration). On the other hand, the danger involved in setting the standards too high is much less than in the "International Harvester" situation. For example, under the Act, the penalty for noncompliance with fuel economy standards is a monetary civil penalty, the magnitude of which is tied to the extent of the violation. On the other hand, violation of Clean Air Act emission standards might result in enjoining the sale of the non-complying vehicles, conceivably resulting in an industry shutdown. 42 U.S.C. 1857f-5. Fuel economy civil penalties are assessed at a level of five dollars per vehicle per 0.1 mpg of violation, generally within the capability of the automobile companies to either absorb or to pass on to consumers without substantial sales reduction. 15 U.S.C. 2005. In addition, civil penalties incurred in one year can be offset by credits earned in the previous and subsequent years, as previously noted. Penalties large enough to jeopardize a company's continued viability or generated by forces beyond the company's control can be reduced or eliminated. 15 U.S.C. 2005(b)(3). Finally, the Act provides for amending these standards at any time, where the amendment makes the standards less stringent. See section 502(f) of the Act. If some unforeseen contingency arises which makes the attainability of the standards appear dubious, adjustments can be made. The time frame for making these adjustments is much greater than was the case in

"International Harvester." All of the technological improvements assumed in this notice are permitted and expected to be phased-in over several years. If problems arise with respect to the marketability or feasibility of the technology, the problem will appear at the start of the phase-in period for the technology, prior to the time when the industry has made irreversible commitments in that area regarding their entire fleets. This contrasts with the "International Harvester" situation where *all* automobiles would have been required to make major technological steps in a single year. Thus, a balancing of the risks involved in setting the standards indicates that less damage is incurred by erring on the high side. In that case, corrections can be made with limited adverse impacts. If the error is on the low side, that error may never become apparent, since additional research efforts would not be fully pursued, and the damage could be irreparable. This counsels against any major reduction in the standards to account for "uncertainties," especially given the safety margin.

#### VII. Impact on petroleum consumption.

Section 6 of the Rulemaking Support Paper and section III of the Economic Impact Statement contain discussions of the impacts on petroleum consumption of various fuel economy standards schedules. The RSP concludes that gasoline savings ranging from approximately 9.6 billion gallons per year in 1985 to about twice that amount in the year 1995 are achievable. See Table 6.6, RSP. Over the lives of the passenger automobiles produced in model years 1981-84, gasoline savings of approximately 41 billion gallons would result. These gasoline savings are calculated in relation to a baseline of the gasoline consumption which would have resulted had the new passenger automobile average fuel economy remained at a level of 20 mpg for the year 1980 and thereafter. This baseline was selected because it coincides with the level of the statutory 1980 fuel economy standard, it is consistent with the level of average fuel economy likely to have been voluntarily achieved by the manufacturers, and its use was supported by at least one participant in the proceeding. Tr-II, p. 96; DX-15, Document III, p. 2 (Ford). To put this fuel savings in perspective, the resulting reduction in

petroleum consumption could result in a cumulative national savings of approximately 25 billion dollars by the year 1995, at an assumed petroleum price of \$13.50 per barrel. See RSP Table 6.7.

#### VIII. Economic impact of the standards.

The economic impact of these standards was independently evaluated in accordance with Internal Regulatory Procedures by the NHTSA Office of Planning and Evaluation. This assessment utilizes the assumptions set forth in the RSP and expands upon the analyses in that document. That is, the RSP shows cumulative impacts from 1977 for all fuel economy improvements while the Economic Impact Assessment reflects changes from MY 1980 vehicles due solely to improvements necessary to meet the rule.

To summarize the Economic Impact Assessment, the total change for the Domestic Auto Industry for model years 1981-84 (from a base of MY 1980 and 20 mpg) due to the rule are estimated as follows:

Gasoline consumption for the average vehicle manufactured in MY's 1981-84 will be reduced by approximately 1100 gallons for a total lifetime savings of 1.2 billion barrels; consumer lifetime gasoline costs (at 65 cents per gallon) will be reduced by \$640 per car, retail prices will increase by about 3 percent or \$175 per car; total consumer costs (that is, retail prices, maintenance costs, and gasoline costs) are anticipated to decrease by about \$450 per car or \$20 billion nationally. The domestic industry extraordinary capital requirements are anticipated to increase by \$3 billion, new car sales may decrease by about .4 percent or a total of 155,000 vehicles, and total industry employment is estimated to rise by 77,000 jobs due to extraordinary capital expenditures. Most of these impacts can be considered insignificant with the exception of the reduction in gasoline consumption and possibly the increase in industry capital requirements, should sales decline for several years due to unforeseen events.

Sensitivity analyses performed on several of the variables used in the analysis show little change in results. Thus, these results are good approximations of the impacts to be expected from the rule.

It is recognized that the economic projections made in the Department's various economic analyses are subject to possible changes in the national economy and in the structure of the industry, which no one is presently able to predict with perfect accuracy.

#### IX. Environmental impact.

A detailed analysis of the environmental impacts associated with various alternative fuel economy standard schedules for the 1981-84 period was conducted, consistent with the requirements of the National Environmental Policy Act, 42 U.S.C. 4321, *et seq.* The analysis concluded that the national goals of a better environment and of energy conservation are generally compatible, in that measures which tend to conserve energy also tend to be beneficial to the environment. The most obvious environmental benefits associated with these standards are the conservation of scarce resources such as petroleum and the various metals which presently go into the automobiles, and the reduction of pollution associated with the extraction and processing of those materials. Most areas of possible adverse environmental impacts, such as the pollution associated with the increased use of lightweight materials, are offset by reductions in pollution associated with the items replaced. The most significant possible exception to this is the still unresolved issue of the generation and potential for control of presently unregulated pollutants from diesel and other alternative engines. The Department has not based its standards on the use of alternative engines at this time primarily for that reason. However, the issue of the environmental impacts associated with the various alternative engines is of major importance, and the EPA is pursuing the matter now.

#### X. Safety impact.

The NPRM raised a question regarding the impact of occupant safety of downsizing passenger automobiles as a result of the fuel economy standards. Depending upon the assumptions made, reasonable conclusions can be made that there will be little net safety impact or, alternatively, that there will be a significant adverse safety impact.

A major reason for suggesting that downsizing might have a significant adverse safety impact is the physical law of conservation of momentum, which indicates that when objects of different mass collide, the smaller object will experience a greater change in velocity than the larger one. DN-18, Att. VII, p. 4 (GM). There, in a collision between a small automobile and a large one, the occupants of the smaller one may collide with the vehicle interior with a greater velocity than would be the case for the occupants of the larger automobile, assuming that seat belts were not used. A further advantage which large automobiles may have is that their additional size may provide for additional energy-absorbing crush space outside the occupant compartment, which may allow the energy of a crash to be dissipated in a manner less injurious to the occupants.

On the other hand, accident information appears to indicate that the change of injury in single car crashes is not appreciably greater in a small car than in a large car. The reduction in vehicle weight and size will apparently be offset to a substantial degree by the reduction in the range of passenger automobile weights which is projected to occur as the larger automobiles are downsized. Further, smaller automobiles may have certain advantages in terms of accident avoidance which tend to offset their possible disadvantages. One such advantage is related to the "target-projectile" effect. See Docket No. FE-76-01-GR-7, pp. 40-2 (Mr. Stanley Hart). This effect results from the fact that the larger an automobile is in relationship to a road lane, the more likely it is to hit or be hit by anything else within that lane, and the more likely it is to veer outside its assigned lane because of the reduced margin for error. A corollary to this is the increased ability of a small automobile to maneuver within its lane to avoid other automobiles. Docket No. FE-76-01-GR-8, p. 9 (Prof. P. L. Yu, *et al.*). Furthermore, although the shielding effect of vehicular weight may be an indicator of an automobile's protective ability, that same weight also serves as a weapon with respect to other automobiles and pedestrians. Thus, additional weight in vehicles may be a benefit to the occupant of that particular vehicle but a detriment to other drivers and pedestrians.

Available technology provides the means to argue that the downsized automobile fleet of the 1980's will be as safe, or safer, than the fleet of today. The Department has statutory responsibility under the National Traffic and Motor Vehicle Safety Act to issue motor vehicle safety standards that meet the need for motor vehicle safety. The estimates of fuel economy penalties due to Federal motor vehicle safety standards presume the existence of standards that will yield safety improvements which more than offset any net safety impacts due to reduced vehicle size or weight (see RSP).

The above conclusions should not be construed to mean that passenger automobiles are or will be as safe as possible. Among the actions that could be taken to improve the safety characteristics of future automobiles are techniques described in Volvo's response to the May 10, 1977, special order, such as the use of energy-absorbing structural designs. DN-28-02, p. 11 and Attachment. These techniques could be implemented concurrently with the vehicle redesign which occurs as part of the downsizing process. When representatives of the two largest domestic manufacturers were asked at the fuel economy hearing whether their companies planned to incorporate such techniques as part of the redesign process, they responded that they would do whatever was necessary to comply with applicable safety standards, but presumably no more. Tr-II, p. 86 (Ford) and 187 (GM). The Department encourages the various automakers to consider techniques such as those described by Volvo when present passenger automobiles are redesigned.

#### **XI. 1981-1984 Passenger Automobiles.**

The passenger automobiles produced during the 1981-84 period will differ significantly from those presently produced. These differences will result not only from the requirements of the Motor Vehicle Information and Cost Savings Act, but also from requirements in the areas of safety and emission control and from market and other forces. It is therefore appropriate to discuss in general terms the implications of all these requirements for the driving public, with particular emphasis on the energy-related changes.

The President has recently stated that the nation's energy situation will require actions and possible sacrifices on the part of all citizens. In that context, any sacrifices required of the driving public as a result of these fuel economy standards appear insubstantial, mainly requiring the curtailment of wasteful automotive designs and technology. Such measures reduce the need for additional and possibly severe methods of conserving gasoline, such as reducing vehicle usage, and thus preserve the most important value of passenger automobiles, their contribution to public mobility. In fact, the Department believes that passenger automobiles produced in the 1981-84 period have the potential to be superior overall products as compared to their present counterparts. These future vehicles have the potential to be superior not just from the standpoint of fuel economy, but also in such important areas as emission control and occupant safety, and in terms of technological sophistication and overall reliability. Statements to the effect that 1981-84 fuel economy standards would necessarily force the entire new car buying public into cramped, spartan, 4-seat subcompacts are clearly incorrect in the Department's view. For example, the Department projects that if the present General Motors full-size cars with standard engine were modified in accordance with the options listed in section III of this notice in such areas as material substitution (but not downsizing), improved automatic transmission, lubricants, and accessories, and reduced aerodynamic drag and rolling resistance, the fuel economy of those passenger automobiles would be approximately 25 mpg. If some form of alternative engine were used in those automobiles, their fuel economy could rise to over 30 mpg.

The most obvious adverse impact of the various changes is that the cost to produce new passenger automobiles will increase. However, the manufacturing cost increases and resulting retail price increases can be held within an acceptable range. Further, these initial price increases are expected to be slight and to be recouped over the life of the automobile, in the form of fuel savings, reduced maintenance expenditures, and societal health benefits from improved emission and safety characteristics. Compared to 1977 auto-

mobiles, the net benefit for 1984 automobiles over their lifetime should be more than \$1,000.

The Department believes that the 1981-84 passenger automobiles can be designed to have better overall performance characteristics than present ones. The term "performance" is often defined very narrowly as a synonym for high acceleration capability on a straightaway. However, straight-line acceleration is only one aspect of overall driving performance. Other important aspects are maneuverability, handling, reliability, and overall economy of operation. Many of today's passenger automobiles leave substantial room for improvement in these aspects of performance. Compliance with fuel economy standards will create the potential to improve these latter aspects, without major reductions in straight-line acceleration, primarily through the elimination of bulk. The Department's analysis shows that these changes can be accomplished without sacrifice to vehicle roominess and utility. Further changes can be made to future engines. There is no reason to believe that consumers' transportation needs would not be satisfied by such automobiles.

## **XII. Implications for the standards for 1985 and thereafter.**

For the purposes of this rulemaking proceeding, the Department was constrained to consider standards within a "steady progress" path between the statutorily imposed 1980 standard of 20 mpg and the standard for 1985 and thereafter of 27.5 mpg. However, section 502(a)(4) of the Act authorizes the Department to amend the standard or standards for 1985 and thereafter if it is determined that the statutory level is not in fact the "maximum feasible average fuel economy level" for those years. Our analysis indicates that levels of average fuel economy in excess of 27.5 mpg are achievable in the 1985 time frame. In addition, several areas of additional fuel economy improvement potential deserve exploration. Among these are the impact of whatever new energy legislation ultimately is signed into law on future product mixes, the potential for additional weight reduction through extensive material substitution, and the potential to shift to alternative engines. Because of the limited scope of the present proceeding and time constraints,

it was not possible to explore these issues adequately. However, the significant fuel saving potential associated with these items and the high national priority correctly assigned to the need to conserve energy necessitate a consideration of the level of the standards for 1985 and thereafter. Therefore, in the near future the Department will exercise its discretionary authority under section 502(a)(4) of the Act to initiate rulemaking to amend those standards. As part of this rulemaking, it will also be necessary to reconsider the standards promulgated today, to assure that they are set at levels which are both the maximum feasible average fuel economy levels and will result in steady progress toward the selected standard for 1985. However, it is unlikely that the standards for 1981-83 would be significantly revised as part of the reconsideration, given the diminished lead-time

for the manufacturers by the time that rulemaking is completed and the need to provide stable planning targets. See Senate Report, *supra*, at p. 21.

(Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); Sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2002)).

The program official and lawyer principally responsible for the development of this regulation are Stanley R. Scheiner and Roger C. Fairchild, respectively.

Issued on June 27, 1977.

Brock Adams  
Secretary of Transportation

**42 F.R. 33534**  
**June 30, 1977**



## **PREAMBLE TO AMENDMENT TO PART 531—AVERAGE FUEL ECONOMY STANDARDS FOR PASSENGER AUTOMOBILES**

**(Docket No. LVM 77-05; Notice 3)**

*Action:* Final decision to grant exemption from average fuel economy standards.

*Summary:* This notice exempting Excalibur Automobile Corp. (Excalibur) from the generally applicable average fuel economy standard of 18.0 miles per gallon (mpg) for 1978 model year passenger automobiles and establishing an alternative standard is issued in response to a petition by Excalibur. The alternative standard is 11.5 mpg.

*Date:* The exemption and alternative standard apply in the 1978 model year.

*For further information contact:*

Douglas Pritchard, Office of Automotive Fuel Economy Standards, National Highway Traffic Safety Administration, Washington, D.C. 20590 (202-755-9384).

*Supplementary information:*

The National Highway Traffic Safety Administration (NHTSA) is exempting Excalibur from the generally applicable passenger automobile average fuel economy standard for the 1978 model year and establishing an alternative standard.

This exemption is issued under the authority of section 502(c) of Title V of the Act. Section 502(c) provides that a manufacturer of passenger automobiles that manufactures fewer than 10,000 vehicles annually may be exempted from the generally applicable average fuel economy standard if that generally applicable standard is greater than the low volume manufacturer's maximum feasible average fuel economy and if the NHTSA establishes an alternative standard applicable to that manufacturer at the manufacturer's maximum feasible average fuel economy. In determining the manufacturer's maximum feasible

average fuel economy, section 502(e) of the Act requires the NHTSA to consider:

- (1) Technological feasibility;
- (2) Economic practicability;
- (3) The effect of other Federal motor vehicle standards on fuel economy; and
- (4) The need of the Nation to conserve energy.

This final rule was preceded by a notice announcing the receipt of a petition for exemption from the 1978 standard (43 FR 19311; May 4, 1978) and a proposed decision to grant an exemption to Excalibur for the 1978 model year (43 FR 33268; July 31, 1978).

No comments were submitted in response to the notice of receipt of the petition.

Three comments were submitted in response to the proposed decision. One of these comments was submitted by a private citizen, who supported the proposed exemption, because he believed that Excalibur produced an excellent product. The other two comments, both of which opposed the proposed exemption, were submitted by public interest groups. The objections centered primarily on the suggestion that the proposed exemption for Excalibur was contrary to the Congressional intent, that the agency had erroneously determined Excalibur's maximum feasible average fuel economy level, and that even if Excalibur's maximum feasible average fuel economy level had correctly been determined, the agency should use its discretion to deny the requested exemption.

With regard to the first point, both commenters stated that granting an exemption to Excalibur would be contrary to the general Congressional intent of improving fuel economy. Congress, however, specifically included a provision whereby low volume manufacturers could

be exempted from the generally applicable standard if that generally applicable standard were greater than the low volume manufacturer's maximum feasible average fuel economy and the agency establishes an alternative standard for the low volume manufacturer at its maximum feasible average fuel economy level. The inclusion of this provision strongly suggests that Congress intended that, in some circumstances, low volume manufacturers would be exempted from the generally applicable standard.

One commenter went on to argue that Congress had intended that the low volume exemptions only be available to manufacturers of moderately priced cars, and not to manufacturers of very expensive cars. In this commenter's view, the manufacturer of very expensive cars can pass on any civil penalties to its customers in the form of a price increase, and both manufacturer and customer could consider this as "conscience money".

No legislative history supporting this contention regarding Congressional intent is cited by the commenter or known to this agency. Congress did give the agency discretionary authority to grant or deny petitions. However, Congress did not direct the agency to use the discretion to deny exemption petitions by manufacturers of high-priced automobiles or to use it in any other particular manner.

This commenter went on to urge that there is no incentive for these low volume manufacturers to improve fuel economy, because an exemption can be expected. However, any exemption is required to be accompanied by an alternative standard set at that manufacturer's maximum feasible average fuel economy level. This will ensure that these manufacturers must improve their fuel economy, or pay a civil penalty.

Both public interest groups asserted that NHTSA had incorrectly determined Excalibur's maximum feasible average fuel economy. One commenter pointed out that had Excalibur adopted the Corvette engine in 1975, its automobiles would have better fuel economy for the 1978 model year. This point is true, but, as the notice of receipt of Excalibur's petition pointed out, the decision not to use the Corvette engine was made because of technical problems relating to the

placement of the catalyst and the costs of certifying that vehicle. This decision was not clearly unreasonable when made, and was made before the passage of any fuel economy standards by Congress. Accordingly, the determination of maximum feasible average fuel economy for Excalibur was made assuming that Excalibur was using the engine currently in its vehicles. Instead of another engine it might have installed in those vehicles. It should be emphasized that the time for selecting a different engine and improving the fuel economy of 1978 Excaliburs has passed.

Both of these commenters asserted that the agency erred in suggesting that the Nation's need to conserve energy would be negligibly affected by granting this exemption. However, neither of these commenters questioned the agency estimate that Excalibur's 1978 automobiles achieving an average fuel economy of 11.5 mpg rather than 18.0 mpg would result in the consumption of an additional 2.5 barrels of fuel per day. Since the United States currently consumes about 5 million barrels of fuel in passenger automobiles each day, the additional fuel consumed by Excalibur achieving an average fuel economy of 11.5 mpg represents .00005 percent of daily passenger car fuel consumption. The agency again concludes that this amount is insignificant. In any event, NHTSA again points out that no excess fuel is used if Excalibur's standard is set at its maximum feasible level instead of some higher level.

Both commenters urged that even if Excalibur's excess use of fuel is minor, the excess use by all low volume manufacturers would not be minor. The additional fuel consumption by all low volume manufacturers who have petitioned for exemption in the 1978 model year achieving their maximum feasible average fuel economy levels rather than the generally applicable standard of 18.0 mpg will amount to about 64 barrels of fuel per day. This total represents about .0013 percent of daily passenger car fuel use, and is still small enough for this agency to conclude that it is an insignificant amount. More important, setting standards above these manufacturer's maximum feasible levels would not result in additional fuel savings.

The final reason suggested by the commenters for denying Excalibur's petition for exemption was that the agency should exercise its discretion to deny the petition on the grounds that it is contrary to the general goal of energy conservation and that an exemption would erode public support for the fuel economy program. This agency believes that the language in section 502(c) specifying that the agency may exempt low volume manufacturers indicates that Congress intended this agency to apply a test of whether granting an exemption would be generally consistent with the purposes of the Act. The main purpose of the Act is conserving energy. Establishing standards above the maximum feasible average fuel economy for Excalibur would not conserve any energy, since the alternative standard is based on the premise that it is not possible for Excalibur to achieve better fuel economy than its maximum feasible level.

As to the comments stating that an exemption for Excalibur would endanger public support for the program, this agency does not agree that requiring very small manufacturers like Excalibur to comply with standards set at their maximum feasible level instead of the maximum feasible level for larger manufacturers will necessarily erode public support for the program. Instead, the agency believes that the process of exempting

the very small manufacturers will be viewed as equitably adjusting the generally applicable fuel economy standards to the lesser capabilities of these manufacturers.

For these reasons the agency has determined that the maximum feasible average fuel economy for Excalibur in the 1978 model year is 11.5 mpg. Therefore, this agency is exempting Excalibur from the generally applicable standard of 18.0 mpg for the 1978 model year and is establishing an alternative standard for Excalibur at 11.5 mpg for the 1978 model year.

Accordingly, 49 CFR Part 531 is amended. . . .

AUTHORITY: Sec. 9, Pub. 89-670, 80 Stat. 931 (49 U.S.C. 1657); sec. 301, Pub. 94-163, 89 Stat. 901 (15 U.S.C. 2002); delegation of authority at 41 FR 25015, June 22, 1976.

The program official and attorney principally responsible for the development of this decision are Douglas Pritchard and Stephen Kratzke, respectively.

Issued on January 11, 1979.

Joan Claybrook  
Administrator

**44 F.R. 3708-3709**  
**January 18, 1979**



## PREAMBLE TO AMENDMENT TO PART 531—AVERAGE FUEL ECONOMY STANDARDS FOR PASSENGER AUTOMOBILES

(Docket No. LVM 77-02; Notice 3)

*Action:* Final decision to grant exemption from average fuel economy standards.

*Summary:* This notice exempting Rolls-Royce Motors Inc. (Rolls-Royce) from the generally applicable average fuel economy standard of 18.0 miles per gallon (mpg) for 1978 model year passenger automobiles and establishing an alternative standard is issued in response to a petition by Rolls-Royce. The alternative standard is 10.7 mpg.

*Date:* The exemption and alternative standard apply in the 1978 model year.

*For further information contact:*

Douglas Pritchard, Office of Automotive Fuel Economy Standards, National Highway Traffic Safety Administration, Washington, D.C. 20590 (202-755-9384).

*Supplementary information:*

The National Highway Traffic Safety Administration (NHTSA) is exempting Rolls-Royce from the generally applicable passenger automobile average fuel economy standard for the 1978 model year and establishing an alternative standard.

This exemption is issued under the authority of section 502(c) of Title V of the Act. Section 502(c) provides that a manufacturer of passenger automobiles that manufactures fewer than 10,000 vehicles annually may be exempted from the generally applicable average fuel economy standard if that generally applicable standard is greater than the low volume manufacturer's maximum feasible average fuel economy and if the NHTSA establishes an alternative standard applicable to that manufacturer at the manufacturer's maximum feasible average fuel economy. In determining the manufacturer's maximum feasible

average fuel economy, section 502(c) of the Act requires the NHTSA to consider:

- (1) Technological feasibility;
- (2) Economic practicability;
- (3) The effect of other Federal motor vehicle standards on fuel economy; and
- (4) The need of the Nation to conserve energy.

This final rule was preceded by a notice announcing the receipt of a petition for exemption from the 1978 standard (42 FR 64171; December 22, 1977) and a proposed decision to grant an exemption to Rolls-Royce for the 1978 model year (43 FR 30081; July 13, 1978). Only one comment on the notice of receipt was submitted. That commenter urged that Rolls-Royce be exempted "in the name of common sense".

Eleven comments were received in response to the proposed decision, all of which opposed the proposed exemption. These comments raised three main points: Congress never intended that Rolls-Royce receive an exemption; the agency had incorrectly determined the maximum feasible average fuel economy for Rolls-Royce; and even if Rolls-Royce were eligible and had a maximum feasible average fuel economy of less than the generally applicable standard of 18.0 miles per gallon (mpg), NHTSA should use its discretion to deny the Rolls-Royce petition.

With respect to the first point, several commenters stated that it was unfair for some manufacturers to be forced to comply with a standard of 18 mpg, while others were exempted from that requirement. Congress determined, however, through section 502(c) of the Act, to authorize this agency to exempt low volume manufacturers from the generally applicable standard and establish a standard for those manufacturers at the level of their maximum feasible average fuel

economy. Congress took this action in recognition of a variety of factors, including the limited engineering staff and financial resources of these manufacturers. Low volume manufacturers can be exempted from the generally applicable standards only if they cannot comply with those standards, and if alternative standards are set.

Other commenters said that the agency should require fuel economy improvements by all manufacturers, not permit certain manufacturers to ignore the generally applicable fuel economy standards. The agency is requiring all exempted manufacturers to comply with an alternative standard set at their maximum feasible average fuel economy. A requirement that these manufacturers achieve some higher fuel economy level would not save any additional fuel, since the alternative standard is based on the premise that it is not possible for a manufacturer to achieve a higher fuel economy level. Hence, exempting low volume manufacturers from the generally applicable standards and establishing an alternative standard at their maximum feasible level does not result in any additional use of fuel.

In this vein, one other commenter suggested that Congress had intended that the low volume exemptions only be available to manufacturers of moderately priced cars, and not to manufacturers of very expensive cars. In this commenter's view, the manufacturer of very expensive cars can pass on any civil penalties to its customers in the form of a price increase. Given the price of these cars, this commenter concluded that the increase would not cause any noticeable decrease in sales, while an exemption would only serve to keep prices down for the purchasers of these expensive vehicles.

No legislative history supporting this contention regarding Congressional intent is cited by the commenter or known to this agency. Congress did give the agency discretionary authority to grant or deny petitions. However, Congress did not direct the agency to use that discretion to deny exemption petitions by manufacturers of high-priced automobiles or to use it in any other particular manner.

Other comments suggested that it was unfair to grant exemptions only to foreign companies, while requiring all domestic companies to comply

with the generally applicable standard. Both domestic and foreign low volume manufacturers are eligible for exemptions. Indeed, the first two low volume manufacturers to receive exemptions were domestic manufacturers, Avanti and Checker.

The second major objection raised by the commenters concerned this agency's determination of the maximum feasible average fuel economy for Rolls-Royce. No commenters suggested that the consideration of technological feasibility or the effect of other Federal motor vehicle standards on fuel economy had been in error. In this connection, it should be emphasized that the time for improving the fuel economy of 1978 Rolls-Royces has passed. However, several commenters stated that this agency had not properly considered the economic practicability or the need of the Nation to conserve energy.

One commenter argued that this agency had not considered the ability of Rolls-Royce to pay the civil penalty which would be assessed if Rolls-Royce failed to comply with the higher generally applicable standard. The agency agrees that it has confined itself under Section 502(c) to an analysis of the financial capabilities of the petitioner to improve fuel economy by using smaller engines, lighter components, and the like, and does not consider the ability to absorb any potential civil penalties.

The reason for so limiting the analysis of economic practicability in setting alternative standards for individual manufacturers is that the agency believes that Congress intended the maximum feasible concept to result in an alternative set at the highest average fuel economy level a manufacturer could reasonably be expected to achieve in a given model year. If the ability to pay any civil penalty is considered as a part of economic practicability for an individual manufacturer, the resulting standard would be higher than the highest fuel economy level the manufacturer could achieve in that model year, and thus would impose an unavoidable civil penalty. This would not conserve any additional fuel since it would not cause that manufacturer to achieve higher fuel economy and would not apply to other manufacturers whose fuel economy could exceed the fuel economy of that manufacturer. Accordingly, the agency does not believe that

Congress intended the ability to pay a civil penalty to be a part of economic practicability under these circumstances.

Other commenters suggested that NHTSA's determination that the need of the Nation to conserve energy would be negligibly affected by granting this exemption was erroneous. For instance, one commenter stated that it was unfair to consider exempting Rolls-Royce because of the insignificant amount of fuel involved, and compared this to a proposal allowing Cadillac drivers to drive at whatever speed they chose while requiring drivers of all other cars to observe posted speed limits, because of the small number of Cadillacs on the road. Congress has already decided the issue of fairness by authorizing the exemption of low volume manufacturers. Further, the Act specifically directs the agency to consider the need of the Nation to conserve energy, and when that need is negligibly affected by a given fuel economy, the agency must give weight to that fact.

None of these comments questioned the agency estimate that Rolls-Royce 1978 automobiles achieving an average fuel economy level of 10.7 mpg rather than 18.0 mpg would result in the consumption of an additional 30.4 barrels of fuel per day. Since the United States currently uses about 5 million barrels of fuel in passenger automobiles each day, the additional fuel consumed by Rolls-Royce represents .00061 percent of daily fuel consumption. The agency concludes that an amount this small is insignificant.

The final reason suggested by the commenters for denying an exemption for Rolls-Royce was that the agency should exercise its discretion to deny the exemption request on the grounds that it is contrary to the goal of energy conservation and will erode public support for the fuel economy program. This agency believes that the language in section 502(c) specifying that this agency may exempt low volume manufacturers indicates that Congress intended this agency to apply a test of whether granting an exemption would be generally consistent with the purposes of the Act. The main purpose of the Act is conserving energy. Establishing standards above

the maximum feasible average fuel economy levels for Rolls-Royce would not conserve any additional energy, since the alternative standard is based on the premise that it is not possible for the company to achieve better fuel economy than the maximum feasible level.

As to the comments stating that exemptions would endanger public support for the fuel economy program, this agency does not agree that requiring very small manufacturers like Rolls-Royce to comply with standards set at their maximum feasible level instead of the maximum feasible level for larger manufacturers will necessarily erode public support for the program. Instead, the agency believes that the process of exempting the very small manufacturers will be viewed as equitably adjusting the generally applicable fuel economy standards to the lesser capabilities of these manufacturers.

For the above reasons, the agency has determined that the maximum feasible average fuel economy for Rolls-Royce in the 1978 model year is 10.7 mpg. Therefore, the agency is exempting Rolls-Royce from the generally applicable standard of 18.0 mpg for the 1978 model year and establishing an alternative standard for Rolls-Royce at 10.7 mpg for the 1978 model year.

Accordingly, 49 CFR Part 531 is amended. . . .

The program official and attorney principally responsible for the development of this decision are Douglas Pritchard and Stephen Kratzke, respectively.

**AUTHORITY:** Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2002); delegation of authority at 49 FR 25015, June 22, 1976.

Issued on January 11, 1979.

Joan Claybrook  
Administrator

**44 F.R. 3710**  
**January 18, 1979**





# **PREAMBLE TO AMENDMENT TO PART 531—PASSENGER AUTOMOBILE AVERAGE FUEL ECONOMY STANDARDS**

(Docket No. LVM 77-07; Notice 3)

*Action:* Final decision to grant exemption from average fuel economy standards.

*Summary:* This notice exempting Officine Alfieri Maserati, S.p.A. (Maserati) from the generally applicable average fuel economy standard of 18.0 miles per gallon (mpg) for the 1978 model year passenger automobiles and establishing an alternative standard is issued in response to a petition by Maserati. The alternative standard is 12.6 mpg.

*Applicable date:* The exemption and alternative standard apply in the 1978 model year.

*For further information contact:*

Douglas Pritchard, Office of Automotive Fuel Economy Standards, National Highway Traffic Safety Administration, Washington, D.C. 20590 (202-755-9384).

*Supplementary information:*

The National Highway Traffic Safety Administration (NHTSA) is exempting Maserati from the generally applicable passenger automobile average fuel economy standard for the 1978 model year and establishing an alternative standard. This exemption is issued under the authority of section 502(c) of the Motor Vehicle Information and Cost Savings Act, as amended, (the Act). Section 502(c) provides that a manufacturer of passenger automobiles that manufactures fewer than 10,000 vehicles annually may be exempted from the generally applicable average fuel economy standard if that standard is greater than the low volume manufacturer's maximum feasible average fuel economy and if the NHTSA establishes an alternative standard applicable to that manufacturer at that manufacturer's maximum feasible average fuel economy. In determining the manufacturer's maximum feasible average fuel economy, section 502(c) of the Act requires the NHTSA to consider:

- (1) Technological feasibility;
- (2) Economic practicability;
- (3) The effect of other Federal motor vehicle standards on fuel economy; and
- (4) The need of the Nation to conserve energy.

This final rule was preceded by a notice announcing the receipt of a petition for exemption from the 1978 standard (43 FR 46016; October 5, 1978) and a proposed decision to grant an exemption to Maserati for the 1978 model year (44 FR 3737; January 18, 1979). Only one comment on the notice of receipt was submitted. That commenter urged that Maserati's petition be granted so that it could remain in the U.S. market and asserted that the world will be a better place because of the continued existence of these automobiles. No comments were received on NHTSA's proposal to exempt Maserati from the generally applicable standard of 18.0 mpg for the 1978 model year and to establish an alternative standard for Maserati at 12.6 mpg during the 1978 model year.

Accordingly, in consideration of the foregoing, 49 CFR Part 531 is amended. . . .

The program official and attorney principally responsible for the development of this decision are Douglas Pritchard and Stephen Kratzke, respectively.

**AUTHORITY:** Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2002); delegation of authority at 49 CFR § 1.50.

Issued on February 16, 1979.

Joan Claybrook  
Administrator

**43 F.R. 34785  
August 7, 1978**



# PREAMBLE TO AN AMENDMENT TO PART 531—PASSENGER AUTOMOBILE AVERAGE FUEL ECONOMY STANDARDS

(Docket No. LVM 77-07; Notice 4)

**ACTION:** Technical Amendment.

**SUMMARY:** In the Federal Register of March 1, 1979 (44 FR 11548), this agency published a notice exempting Officine Alfieri Maserati, S.p.A. (Maserati) from the generally applicable average fuel economy standard of 18.0 miles per gallon (mpg) for 1978 model year passenger automobiles, and established an alternative average standard for Maserati at its maximum feasible level of 12.6 mpg. Upon recalculating Maserati's maximum feasible average fuel economy level, this agency discovered that it had made an error in rounding the number to the nearest tenth of a mile per gallon. The actual maximum feasible fuel economy for 1978 Maserati automobiles was 12.5 mpg, and this notice amends Maserati's alternative standard for the 1978 model year to 12.5 mpg.

**EFFECTIVE DATE:** This amendment is effective upon date of publication in the *Federal Register*. January 21, 1980.

## FOR FURTHER INFORMATION CONTACT:

Robert Mercure, Office of Automotive Fuel Economy Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-755-9384).

## SUPPLEMENTARY INFORMATION:

In a notice published at 44 FR 11548, March 1, 1979, the National Highway Traffic Safety Administration, (NHTSA) announced the final determination exempting Maserati from the generally applicable passenger automobile average fuel economy standard for the 1978 model year, and establishing an alternative standard of 12.6 mpg for Maserati for the 1978 model year. This alternative standard was set at the level which NHTSA determined was Maserati's maximum feasible average fuel economy for its two model types, as NHTSA is required to do by section 502(c) of the Motor Vehicle Information and Cost Savings Act, as amended (15 U.S.C. 2002(c)).

Determination of that level involved assessing the extent to which the fuel economy of Maserati's two model types could be improved and then averaging the fuel economy values for those model types in accordance with the procedure of the Environmental Protection Agency.

A recent re-examination by the agency of its computation of Maserati's maximum average fuel economy for model year 1978 revealed a significant mathematical error. The agency had erroneously rounded off the fuel economy values for that company's two model types. When those values are properly rounded and the average is recomputed, the average is 12.5 mpg instead of the 12.6 mpg originally computed by the agency.

To correct this error, the agency is amending the alternative standard for Maserati for model year 1978 to change it from 12.6 mpg to 12.5 mpg.

Accordingly, 49 CFR § 531.5(b) (7) is amended to read as follows:

§ 531.5 Fuel economy standards.

(b) The following manufacturers shall comply with the standards indicated below for the specified model years:

(7) Officine Alfieri Maserati, S.p.A.: Model Year 1978, average fuel economy standard (miles per gallon), 12.5.

Issued on January 15, 1980.

Michael M. Finkelstein  
Associate Administrator  
for Rulemaking

45 F.R. 5738  
January 24, 1980



## PREAMBLE TO AN AMENDMENT TO PART 531

### Passenger Automobile Average Fuel Economy Standards (Docket No. LVM 77-04; Notice 3)

**ACTION:** Final decision to grant exemption from fuel economy standards.

**SUMMARY:** This notice exempts Aston Martin Lagonda Inc. (Aston Martin) from generally applicable average fuel economy standards of 19.0 miles per gallon (mpg) and 20.0 mpg for 1979 and 1980 model year passenger automobiles, respectively, and establishes alternative standards. The alternative standards are 11.5 mpg in the 1979 model year and 12.1 mpg in the 1980 model year.

**DATES:** The exemptions and alternative standards set forth in this notice apply in the 1979 and 1980 model years.

#### FOR FURTHER INFORMATION CONTACT:

Robert Mercure, Office of Automotive Fuel Economy Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590  
(202-755-9384)

**SUPPLEMENTARY INFORMATION:** The National Highway Traffic Safety Administration (NHTSA) is exempting Aston Martin from the generally applicable average fuel economy standards for the 1979 and 1980 model years and establishing alternative standards applicable to that company in those model years. This exemption is issued under the authority of section 502(c) of the Motor Vehicle Information and Cost Savings Act, as amended (the Act) (15 U.S.C. 2002(c)). Section 502(c) provides that a manufacturer of passenger automobiles that manufactures fewer than 10,000 vehicles annually may be exempted from the generally applicable average fuel economy standard for a particular model year if that standard is greater than the low volume manufacturer's maximum feasible average fuel economy and if the NHTSA establishes an

alternative standard applicable to that manufacturer at the low volume manufacturer's maximum feasible average fuel economy. In determining the manufacturer's maximum feasible average fuel economy, section 502(e) of the Act, (15 U.S.C. 2002(e)), requires the NHTSA to consider:

- (1) Technological feasibility;
- (2) Economic practicability;
- (3) The effect of other Federal motor vehicle standards on fuel economy; and
- (4) The need of the Nation to conserve energy.

This final rule was preceded by a notice announcing the NHTSA's proposed decision to grant an exemption to Aston Martin for the 1979 and 1980 model years (45 FR 24511, April 10, 1980). NHTSA received 58 comments during the 30-day comment period. All comments were from Aston Martin owners, and all comments supported the proposed exemptions and alternative standards. NHTSA had previously considered all the factors enumerated by the commenters supporting the proposed exemptions.

NHTSA had proposed to establish alternative fuel economy standards of 11.4 mpg for Aston Martin in the 1979 model year and 12.4 mpg in the 1980 model year. Information which became available to this agency from the Environmental Protection Agency after the publication of the proposal indicates that the 1979 Aston Martins achieved a fuel economy level of 11.5 mpg, which is higher than was proposed, and 12.1 mpg in the 1980 model year, which is lower than was proposed. Since these Aston Martin automobiles used all the means for improving fuel economy deemed to be technologically feasible and economically

practicable, these fuel economy tests figures are a more accurate representation of Aston Martin's maximum feasible average fuel economy than the previous estimates made by NHTSA. Accordingly, this final decision incorporates the subsequent information, and adopts 11.5 mpg and 12.1 mpg as Aston Martin's maximum feasible average fuel economy in the 1979 and 1980 model years, respectively.

Based on its conclusions that it is not technologically feasible and economically practicable for Aston Martin to improve the fuel economy of its 1979 and 1980 model year automobiles above an average of 11.5 and 12.1 mpg, respectively, that other Federal automobile standards will not affect achievable fuel economy beyond the extent considered in this analysis, and that the national effort to conserve energy will be negligibly affected by the granting of the requested exemptions and establishment of alternative standards, this agency concludes that the maximum feasible average fuel economy for Aston Martin in the 1979 and 1980 model years is 11.5 and 12.1 mpg, respectively. Therefore, the agency is exempting Aston Martin from the generally applicable standards and is establishing alternative standards of 11.5 mpg for the 1979 model year and 12.1 mpg for the 1980 model year.

In consideration of the foregoing, 49 CFR Part 531 is amended by adding 531.5(b)(4) to read as follows:

§531.5 *Fuel economy standards.*

\* \* \* \*

(b) The following manufacturers shall comply with the standards indicated below for the specified model years:

\* \* \* \*

(4) Aston Martin Lagonda Inc.

<u>Model Year</u>	<u>Average fuel economy standard (miles per gallon)</u>
1979	11.5
1980	12.1

The program official and attorney principally responsible for the development of this decision are Robert Mercure and Stephen Kratzke, respectively.

Issued on September 29, 1980.

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Joan Claybrook  
Administrator

45 FR 67095  
October 9, 1980

## PREAMBLE TO AN AMENDMENT TO PART 531

### Passenger Automobile Average Fuel Economy Standards (Docket No. LVM 77-01; Notice 6)

**ACTION:** Final decision to grant exemption from average fuel economy standards and to establish alternative standards.

**SUMMARY:** This notice exempts Avanti Motors Corporation (Avanti) from the generally applicable average fuel economy standards of 19.0 miles per gallon (mpg) and 20.0 mpg for 1979 and 1980 model year passenger automobiles, respectively, and establishes alternative standards. The alternative standards are 14.5 mpg in the 1979 model year and 15.8 mpg in the 1980 model year.

**DATES:** The exemptions and alternative standards set forth in this rule apply in the 1979 and 1980 model year.

#### FOR FURTHER INFORMATION CONTACT:

Robert Mercure, Office of Automotive Fuel Economy Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590  
(202-755-9384)

**SUPPLEMENTARY INFORMATION:** The National Highway Traffic Safety Administration (NHTSA) is exempting Avanti from the generally applicable average fuel economy standards for the 1979 and 1980 model years and establishing alternative standards applicable to that company in those model years. This exemption is issued under the authority of section 502(c) of the Motor Vehicle Information and Cost Savings Act, as amended (the Act) (15 U.S.C. 2002(c)). Section 502(c) provides that a manufacturer of fewer than 10,000 passenger automobiles annually may be exempted from the generally applicable average fuel economy standard for a particular model year if that standard is greater than the low volume manufacturer's maximum feasible average fuel

economy and if the NHTSA establishes an alternative standard applicable to that low volume manufacturer at the level of its maximum feasible average fuel economy. Section 502(e) of the Act (15 U.S.C. 2002(e)) requires the NHTSA to consider:

- (1) Technological feasibility;
- (2) Economic practicability;
- (3) The effect of other Federal motor vehicle standards on fuel economy; and
- (4) The need of the Nation to conserve energy.

This final rule was preceded by a notice announcing the NHTSA's proposed decision to grant an exemption to Avanti for the 1979 and 1980 model years (46 FR 5022, January 19, 1981). No comments were received during the 45-day comment period.

Based on its conclusions that it is not technologically feasible and economically practicable for Avanti to improve the fuel economy of its 1979 and 1980 model year automobiles above an average of 14.5 and 15.8 mpg, respectively, that other Federal automobile standards did not affect achievable fuel economy beyond the extent considered in this analysis and that the national effort to conserve energy will be negligibly affected by the granting of the requested exemptions, this agency concludes that the maximum feasible average fuel economy for Avanti in the 1979 and 1980 model years is 14.5 and 15.8 mpg, respectively. Therefore, NHTSA is exempting Avanti from the generally applicable standards and is establishing alternative standards of 14.5 mpg for the 1979 model year and 15.8 mpg for the 1980 model year.

In consideration of the foregoing, 49 CFR Part 531 is amended by revising §531.5(b)(1) to read as follows:

§531.5 *Fuel economy standards.*

\* \* \* \*

(b) The following manufacturers shall comply with the fuel economy standards indicated below for the specified model years:

(1) Avanti Motor Corporation.

<u>Model Year</u>	<u>Average Fuel Economy Standard (miles per gallon)</u>
1978	16.1
1979	14.5
1980	15.8
* * * *	

The program official and attorney principally responsible for the development of this decision are Robert Mercure and Stephen Kratzke, respectively.

Issued on April 27, 1981.

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Diane K. Steed  
Acting Administrator

46 FR 24952  
May 4, 1981



## PART 531—AVERAGE FUEL ECONOMY STANDARDS FOR PASSENGER AUTOMOBILES

### Sec.

#### 531.1 Scope.

#### 531.2 Purpose.

#### 531.3 Applicability.

#### 531.4 Definitions.

#### 531.5 Fuel economy standards.

#### 531.6 Measurement and calculation procedures.

##### 531.1 Scope.

This part establishes average fuel economy standards pursuant to section 502(a) of the Motor Vehicle Information and Cost Savings Act, as amended, for passenger automobiles.

##### 531.2 Purpose.

The purpose of this part is to increase the fuel economy of passenger automobiles by establishing minimum levels of average fuel economy for those vehicles.

##### 531.3 Applicability.

This part applies to manufacturers of passenger automobiles.

##### 531.4 Definitions.

(a) *Statutory terms.* (1) The terms "average fuel economy," "manufacture," "manufacturer," and "model year" are used as defined in section 501 of the Act.

(2) The terms "automobile" and "passenger automobile" are used as defined in section 501 of the Act and in accordance with the determination in part 523 of this chapter.

(b) *Other terms.* As used in this part, unless otherwise required by the context—

(1) "Act" means the Motor Vehicle Information and Cost Savings Act, as amended by Pub. L. 94-163.

##### S531.5 Fuel economy standards.

(a) Each manufacturer of passenger automobiles shall comply with the following standards in the model years specified:

<i>Model Year</i>	<i>Average fuel economy standard (miles per gallon)</i>
1978	18.0
1979	19.0
1980	20.0
1981	22.0
1982	24.0
1983	26.0
1984	27.0
1985 and thereafter	27.5

(b) The following manufacturers shall comply with the standards indicated below for the specified model years:

<i>Company</i>	<i>Model Year</i>	<i>Average Fuel Economy Standard Miles per Gallon</i>
(1) • • • •		
(2) Rolls-Royce Motors, Inc.	1978	10.7
(3) • • • •		
(4) Aston Martin Lagonda, Inc.	1979	11.5
	1980	12.1
(5) Excalibur Automobile Corp.	1978	11.5
(6) • • • •		
(7) Officine Alfieri Maserati, SpA	1978	12.5

##### S531.6 Measurement and calculation procedures.

(a) The average fuel economy of all passenger automobiles that are manufactured by a manufacturer in a model year shall be determined in accordance with procedures established by the Administrator of the Environmental Protection Agency under section 502(a) (1) of the Act and set forth in 40 CFR Part 600.

**42 F.R. 33534  
June 30, 1977**



## **PREAMBLE TO PART 533—AVERAGE FUEL ECONOMY STANDARD FOR NON-PASSENGER AUTOMOBILES**

**(Docket No. FE 76-3; Notice 3)**

This notice establishes average fuel economy standards for nonpassenger automobiles which are rated at 6,000 pounds gross vehicle weight or less and are manufactured in model year 1979. Vehicles affected by these standards include pickup trucks, vans, and four-wheel drive, jeep-type vehicles which are rated within that weight range. The standard for four-wheel drive nonpassenger automobiles which are jeep-type vehicles is 15.8 mpg. The standard for all other nonpassenger automobiles is 17.2 mpg. The purpose of these standards is to conserve gasoline by improving the fuel economy of the Nation's fleet of nonpassenger automobiles. The agency estimates that 102,500,000 gallons of gasoline will be saved annually by the 1979 nonpassenger automobile fleet, over 1976 levels. The decreasing world petroleum supply and the uncertain availability to this Nation of existing foreign petroleum, combined with the importance of petroleum to the national economy and standard of living, have made these fuel economy standards necessary.

Dates: These standards will apply to the 1979 model year.

For further information, contact:

Stephen P. Wood  
Office of Chief Counsel  
National Highway Traffic Safety  
Administration  
Department of Transportation  
Washington, D.C. 20590  
(202-426-9511)

### **Supplementary Information:**

The National Highway Traffic Safety Administration (NHTSA) is establishing average fuel economy standards for nonpassenger automobiles manufactured in model year 1979. These standards will appear in a new Part 533, added to

NHTSA regulations by this action. The average fuel economy standards are issued pursuant to section 502(b) of Title V of the Motor Vehicle Information and Cost Savings Act, as amended. This final rule was preceded by a questionnaire last summer and a notice of proposed rulemaking (NPRM), 41 FR 52087, November 26, 1976. The rule proposed in the NPRM placed all nonpassenger automobiles 6,000 pounds gross vehicle weight rating (GVWR) or less in a single class, and established an average fuel economy standard of 18.7 mpg for that class. The NPRM specified that this proposed standard would be reduced in light of any effects of 1979 emissions standards and testing procedures established by the EPA.

Comments to the NPRM were received by NHTSA and were carefully evaluated in the process of developing the final rule. Most of the comments were submitted by automobile manufacturers. There were no comments received from consumer groups, or other public interest organizations.

A number of issues were raised by the comments received in response to the NPRM. The resolution of several of those issues has resulted in changes to the final rule. The major issues which have been raised, and their resolution, along with specific changes to the final rule, are described in the following discussion.

*Summary of changes in the rule and its rationale.* The final rule, which is still limited to nonpassenger automobiles 6,000 pounds GVWR or less, provides for two classes of nonpassenger automobiles, and a separate average fuel economy standard for nonpassenger automobiles in each class. The average fuel economy standard for four-wheel drive, jeep-type vehicles is 15.8 mpg. The average fuel economy standard for all other nonpassenger automobiles is 17.2 mpg.

Comments received from the manufacturers indicated that a separate class of nonpassenger automobiles, with a separate average fuel economy standard, was appropriate for four-wheel drive jeep-type vehicles. Therefore, the agency is establishing two average fuel economy standards for nonpassenger automobiles manufactured in model year 1979, one for the jeep-type vehicles, and one for the remainder of nonpassenger automobiles. However, manufacturers of jeep-type vehicles will have the option of counting their vehicles in the special class for those vehicles, or in the general class of other nonpassenger automobiles.

As described fully in the NPRM, the proposed standard was based primarily on the domestic manufacturers' production plans for 1979. In brief, this approach was taken to avoid market shifts to heavier, less fuel economical vehicles, which could be precipitated or aggravated by requiring manufacturers to take drastic measures to improve fuel economy on short notice. Also, the agency believes that the short leadtime before model year 1979 precluded major changes from current 1979 product plans. Both final standards are based primarily on the manufacturer's product plans for 1979. The agency continues to believe that the approach taken in the NPRM is appropriate, for the reasons stated therein.

For the general class of nonpassenger automobiles that excludes four-wheel drive jeep-type vehicles, the domestic manufacturers indicated in their comments to the NPRM that an average fuel economy in the range of 18.7 mpg to 19.0 mpg was attainable for model year 1979, assuming both 1976 Federal emissions standards and testing procedures. Chrysler projected an average fuel economy of 16.5 mpg for 1979, assuming 1979 Federal testing procedures and the 1979 emissions standards; if Chrysler's estimated fuel economy reduction of 13 percent for emissions and testing procedures is taken out of the 16.5 projection, Chrysler in effect projected an average fuel economy of 19 mpg under 1976 emissions standards and testing procedures.

As described below, the agency does not believe that the manufacturers' fleets of 1979 nonpassenger automobiles will experience a fuel economy

penalty from the 1979 Federal emissions standards. However, based on its own analysis and the comments received, the agency concludes that the change in the fuel economy testing procedures in model year 1979 will result in a reduction in measured fuel economy of 8 percent. Therefore, in the final rule, the proposed standard of 18.7 mpg is lowered to 17.2 mpg.

The standard for four-wheel drive jeep-type nonpassenger automobiles, like the standard for the balance of nonpassenger automobiles, is based on the projected fuel economy of the manufacturers, on an industry or marketwide basis. American Motors Corporation (AMC), Toyota and Chrysler are the only manufacturers of vehicles in this subclassification of nonpassenger automobiles. The agency's analysis of Toyota's fuel economy potential indicates an average fuel economy for Toyota approximately 15 percent lower than AMC. Chrysler has been achieving higher fuel economy than Toyota, but not as high as AMC. Because AMC is the major manufacturer of the vehicles and is projecting the highest fuel economy, the standard was based on the fuel economy projections of AMC. AMC indicated in their comments that 17 mpg was an attainable average fuel economy for model year 1979. Based on its consideration of AMC's product plans, the agency believes that AMC can make some additional improvement in fuel economy by model year 1979. Therefore, the agency has concluded that a level of 17.2 mpg is attainable for AMC under 1976 emissions standards and fuel economy testing procedures. By applying the reduction in measured fuel economy resulting from changes in the testing procedures, the final 1979 standard for general utility, jeep-type vehicles is 15.8 mpg.

A number of comments criticized NHTSA's consideration of technology available to improve fuel economy. Notwithstanding their criticisms all manufacturers indicated that 18.7 mpg to 19.0 mpg, assuming 1976 Federal emissions and testing procedures, was achievable for model year 1979. Therefore, the agency does not believe a full discussion of the criticisms of its technological assessment is necessary at this time, but will consider those criticisms in future rulemaking.

*Scope of the average fuel economy standard.* International Harvester commented that, although the preamble to the NPRM indicated that only vehicles 6,000 pounds or less, GVWR, were intended to be subject to the standard, the proposed standard as drafted includes in its scope vehicles less than 10,000 pounds GVWR. International Harvester bases its comment on its interpretation of proposed Part 523, Vehicle Classification, which was published in the Federal Register on December 20, 1976 (41 FR 53371).

The agency believes that International Harvester has misinterpreted proposed Part 523. Under that proposed regulation, the only vehicles with a GVWR in excess of 6,000 pounds which would be determined to be "automobiles" within the meaning of Title V are vehicles which are manufactured primarily for use in transporting not more than 10 individuals, and which do not meet the criteria for automobiles capable of off-highway operation. If International Harvester's vehicles with a GVWR in excess of 6,000 pounds are not manufactured primarily for that use, those vehicles are not automobiles and, therefore, cannot be nonpassenger automobiles under the Vehicle Classification NPRM. If those vehicles are primarily manufactured for this use, but do not meet those criteria, the vehicles are passenger automobiles.

*Off-road vehicles.* AMC contends in its comment to the NPRM that its Jeep CJ vehicle is not an automobile within the meaning of section 501(1) of Title V. AMC contends that the Jeep CJ is designed, manufactured, and marketed primarily for off-highway operation. Under section 501(1), only vehicles which are "manufactured primarily for use on the public streets, roads, and highways" can be "automobiles." Since the Title authorizes the setting of average fuel economy standards only for "automobiles," AMC is in effect contending that its Jeep CJ vehicle cannot be subject to a fuel economy standard under the Title.

Although AMC in its comment to the NPRM for nonpassenger automobiles did not indicate why it believes that its Jeep CJ vehicle is manufactured primarily for off-road use, AMC did submit a fuller expression of its views on that

subject in a comment to the Vehicle Classification NPRM. In addition, the Ford Motor Company submitted a comment to the Vehicle Classification NPRM which made a similar argument to the one made by AMC, that is, that certain vehicles, because of features making them capable of off-highway operation, are not automobiles within the meaning of Title V because they are not manufactured primarily for use on the highways. AMC stated that Jeeps are manufactured primarily for off-road use because they are "built with low and medium speed capability and accommodate many off-road work-performing equipment accessories." Ford indicated that vehicles characterized by all five of the following features are not manufactured primarily for use on the highways: (1) four-wheel drive, (2) high ground clearance in terms of approach, break-over, and departure angles, and running and axle clearance, (3) engine oil systems capable of operation at inclines up to a 60 percent grade, (4) relatively high axle ratios and heavy duty axle and suspension components, and (5) relatively high frontal area.

NIITSA has concluded that there is no merit in the claims of AMC and Ford that vehicles with the characteristics set out above are not subject to fuel economy standards because their off-road characteristics place them outside the scope of Title V. The characteristics set out by the manufacturers are merely characteristics of vehicles which are capable of off-highway operation. Neither manufacturer claimed that the vehicles referred to were not intended, or expected, to spend a substantial portion of their operating lives on the public streets, roads, or highways. Therefore, NIITSA believes that Congress intended these vehicles to be automobiles within the meaning of section 501 of Title V, and subject to fuel economy standards as nonpassenger automobiles. NIITSA bases its perception of Congressional intent upon the plain language of section 501, the use of language identical to that used in other statutes where the vehicles referred to by Ford and AMC are clearly within the scope of those statutes, the legislative history of Title V, and the purpose for which the Title was enacted.

Congress clearly intended that vehicles capable of off-highway operation be subject to fuel economy standards as nonpassenger automobiles. The term "automobile capable of off-highway operation" is defined in section 501(3) of Title V. While such automobiles cannot be passenger automobiles, they can be subject to an average fuel economy standard under section 502(b) as "automobiles which are not passenger automobiles." Thus, a manufacturer must show more than an off-highway capability in order to show that a vehicle is beyond the scope of Title V.

In addition, a vehicle may be manufactured for more than one "primary" use. This interpretation of "primarily" is supported by the Supreme Court in *Board of Governors of the Federal Reserve System v. Agnew* 329 U.S. 441 (1947). In *Agnew*, the Supreme Court had to decide whether a securities firm which earned approximately two thirds of its revenue from brokerage, and less than one third from underwriting was "primarily engaged" in underwriting under the Banking Act of 1933. The Court believed that "primary" does not always mean "first," and stated, "An activity may be primary . . . if it is substantial." 329 U.S. at 426. Thus, under *Agnew*, even if a vehicle was manufactured primarily for off-highway use, if highway use was a substantial use of the vehicle, it would be manufactured primarily for highway use also, and would therefore be subject to Title V.

The phrase "manufactured primarily for use on the public streets, roads, and highways," which is found in the definition of "automobile" in section 501(1) of Title V, and which is the key to the claims of Ford and AMC, is also found in the definitions of "motor vehicle" in section 102(1) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1391(1)) and section 2(15) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 1901(15)), "Automobile" under Title V, and "motor vehicle" under both the Vehicle Safety Act and the Cost Savings Act, do not completely overlap (for instance, "automobiles" are limited to four wheeled vehicles, while "motor vehicles" are not so limited). However, with respect to a vehicle's identity as an on-road or an off-road vehicle, the terms "motor vehicle" and "automobile" seem to refer to the same vehicles. Looking at the ex-

perience with these vehicles under the Motor Vehicle Safety Act and the Cost Savings Act, it is clear that the vehicles referred to by AMC and Ford are on-road vehicles, with a capability for off-highway operation.

After more than a decade of regulation under the Vehicle Safety Act, both Ford and AMC have acted consistently with the view that vehicles referred to here were "motor vehicles." Indeed, AMC admits that the vehicles are designed to meet the Federal safety standards applicable to motor vehicles. Moreover, the legislative history of the Cost Savings Act specifically contemplates that jeeps are subject to that Act. S.Rept. No. 92-413, 92d Cong., 1st Sess., at 20. Congress must be assumed to have been aware of this long, unchallenged regulatory practice which covered the vehicles at issue here when drafting the language found in section 501 of Title V.

NHTSA also notes that these vehicles are considered by the Environmental Protection Agency (EPA) to be subject to the emissions standards, under the Clean Air Act, which apply only to vehicles "designed for transporting persons or property on a street or highway."

There is nothing in the legislative history of Title V which indicates that the intent of Congress was that the Title have a more narrow scope than that given by the NHTSA's interpretation. In its comment to the Vehicle Classification NPRM, Ford quotes the following passage from the legislative history of Title V, in support of its claim that vehicles with all the features which Ford discussed are not manufactured primarily for on-road use:

The effect of the definitional scheme of the bill is to exclude entirely vehicles not manufactured primarily for highway use (e.g., agricultural and construction equipment, and vehicles manufactured primarily for off-road rather than highway use). (Emphasis supplied by Ford.)

The quoted language adds nothing to Ford's argument. Although this language gives some examples of the kinds of vehicles which Congress intended not to be subject to fuel economy standards under the Title, e.g., agricultural equipment and construction equipment, those vehicles are

not characterized by the features which are claimed by the manufacturers to establish that a vehicle was not manufactured for highway use. Furthermore, the language which Ford underscored by no means referred necessarily to the vehicles which Ford seeks to have excluded from the Title. Other vehicles, such as racing cars, fork-lifts, and airport fire apparatus are just some of the other vehicles which are not manufactured primarily for on-road use.

Indeed, if anything, the quoted language supports NHTSA's position that its interpretation of the "manufactured primarily" language is correct, since the two examples of vehicles which were given have long been considered by the NHTSA to be off-road vehicles. Therefore, Congress seems to be adopting the NHTSA interpretation. Moreover, it should be noted that the quoted material referred to the definitional scheme as it existed in HR 7014. In that earlier version of Title V, there was no specific recognition of automobiles which are capable of off-road operation. Therefore, the House report referred to a definitional scheme that less clearly included off-road vehicles than the scheme enacted into law.

Moreover, Ford did not discuss the legislative history of Title V in the Senate. The bill originally passed by the Senate dealing with automotive fuel economy standards was S.1883. Section 503(7) of S.1883 read:

"light duty truck" means any motor vehicle rated at 6,000 pounds gross vehicle weight or less which (A) is designed primarily for purpose of transportation of property including a derivative of such a vehicle, or (B) *has special features modifying such which for predominant offstreet or off-highway operation and use.* (Emphasis added.)

Hence, the vehicles AMC and Ford seek to have excluded from the title were specifically included in the original Senate bill.

The text of S.1883 was incorporated verbatim into the Senate version of S.622: 41 Cong. Rec. S-16957 (daily ed., September 26, 1975). The conference report for S.622 states that "average fuel economy standards shall apply to all new 4-wheeled motor vehicles (referred to as "auto-

mobiles") manufactured or imported into the United States which are rated at 6,000 pounds gross vehicle weight (GVW) or less" S.Rep. 94-546, at 153. In light of the express provisions of the Senate bill and the broadly inclusive statement in the conference report, the agency believes that the legislative history supports the NHTSA interpretation of the scope of Title V.

Finally, the purpose of the Title dictates that its provisions, especially regarding the scope of its applicability, be given a liberal construction. Congress enacted Title V in response to the energy shortage and the pressing national need to reduce the consumption of gasoline. In light of the importance of energy conservation to the Nation's economic health and standard of living, NHTSA believes that Congress intended the Title to have broad application, and that any interpretation of the Title that would have the effect of exempting an entire class of vehicles from regulation under the Title must be firmly based in the language of the Title or its legislative history. Neither AMC nor Ford has shown a clear expression of Congressional intent that the vehicles with the characteristics they described, making them suitable for off-road operation, should be exempt from fuel economy standards established under the Title. Indeed, as has been demonstrated, the intent of Congress would have those vehicles subject to the Title.

The agency realizes that the term "primarily," as used in the definition of passenger automobile in section 501(2) ("manufactured primarily for use in the transportation of not more than 10 individuals") is given a different meaning than when it is used in section 501(1) ("manufactured primarily for use on the public streets, roads and highways"). However, the agency believes that Congress did not intend that the word be used in the same sense in those two definitional sections. As discussed above, the use of the term "primarily" in the definition of "automobile" must be considered against a legislative backdrop of other statutes using the identical phrase, and the remedial purposes of Title V justifying a broad interpretation of those definitions which delineate the scope of its applicability. However, the use of the term "primarily" in the definition of "passenger automobile" brings other

considerations into play. First, the need to give the term so broad a meaning is less compelling when the effect is not to include a vehicle in the scope of the Title, but only to place a vehicle into one of the categories clearly within the scope of the Title. Second, the definition of "passenger automobile," unlike the definition of "automobile," is not identical to existing definitions in other statutes with established interpretations. Third, since all automobiles carry at least one passenger, interpreting primarily to mean "substantial" would result in no automobile being classified as a nonpassenger automobile. Since Congress clearly intended that nonpassenger automobiles be considered apart from passenger automobiles, such an interpretation would defeat a clear Congressional intent.

*Captive Imports.* In the NPRM, the NHTSA indicated its tentative intent to calculate a single average fuel economy figure for domestic manufacturers which have captive imports by combining the captive imports with the domestically produced vehicles of those manufacturers. Captive imports are vehicles, such as the Chevrolet LUV and the Ford Courier pickup trucks, which are marketed by a domestic manufacturer but fabricated by a foreign manufacturer. It is anticipated that approximately 50,000 1979 LUV's and 50,000 1979 Couriers will be imported into this country. The agency noted that there were some questions about the propriety of this inclusion, including one relating to the meaning of the term "control" as used in section 503(c) of Title V and whether General Motors and Ford import these vehicles within the meaning of section 501(9) of Title V. Comments and information were requested from interested parties.

Comments were received from Chrysler, General Motors and Ford supporting the inclusion of the captive imports, and from the United Auto Workers (UAW) and AMC' opposing the inclusion. Chrysler supported the inclusion of the captive imports because it believed this would allow the manufacturer to adopt the most cost-effective strategy for maximizing fleet fuel economy. General Motors supported the inclusion of the captive imports because it believed its ownership of 34 percent of the common stock of Isuzu (the producer of the LUV) plus its contractual

control over the design, manufacture, and importing of the LUV vehicles makes General Motors the manufacturer under section 503(c) of Title V. Ford supported the inclusion of the captive imports because it believed Title V requires the separation of domestic and imported vehicles only for passenger automobiles, and because it believes its contractual arrangements with Toyo-Kogyo (the producer of the Courier) make Ford the importer of the Courier and hence the manufacturer under section 501(9). Ford also believes its contractual control over the design and manufacture of the Courier constitutes sufficient control to make it the manufacturer under section 503(c) of Title V. The UAW's opposition was based on its belief that the intent of the Title is to treat all imported and domestic vehicles separately, although it conceded that the language of the Title mandates this separate treatment only for passenger automobiles. AMC objected because it believes that the net effect of the inclusion of the captive imports would be to discriminate against non-importers and stimulate foreign production at the expense of domestic production.

The NHTSA has concluded that the inclusion of the captive imports in the model year (MY) 1979 fleet is proper. First, it is clear that Ford and General Motors are the statutory manufacturers of their captive imports. Under section 503(c), the term "manufacturer" includes anyone who "controls" the manufacture of the vehicle. The NHTSA believes that control is not limited to majority stock ownership. Rather, control may consist of either the ownership of a large enough block of common stock in a producer to constitute effective voting control of the firm, as we believe is true of General Motors' ownership of Isuzu stock, or contractual restrictions on the design and manufacture of the vehicle which essentially eliminate the producer's freedom to alter the production of the vehicle, which we believe is true of the contracts between General Motors and Isuzu and between Ford and Toyo-Kogyo. Therefore, we believe that General Motors' and Ford's relationships with the Japanese producers of these vehicles is sufficient to make General Motors and Ford the statutory manufacturers of these vehicles.



In addition, section 501(9) defines the importer of a vehicle to be its manufacturer. The NHTSA believes that acceptance of delivery in the foreign country and assumption of full responsibility for the shipment and import duties on the vehicles by a domestic firm, as is the case for Ford, is sufficient to make the domestic firm the importer of the vehicle, and hence its manufacturer.

Further, the NHTSA believes that separate treatment of domestic and imported NPA's is not required by the Title. Section 503(b)(1) of Title V requires the separate treatment of domestic and captive import vehicles for passenger automobiles only. Section 503(a)(2) leaves open the question of whether to establish administrative requirements for separate treatment of domestic and captive import nonpassenger automobiles. The House report provides that procedures for calculating nonpassenger automobile average fuel economy are to be similar, although not necessarily identical to the procedures used for passenger automobiles. See H. Rept. No. 340, 94th Cong., 1st Sess. 91 (1975).

The provision in section 503(b)(1) for counting most captive import passenger automobiles together with the domestically produced passenger automobiles in model years 1978 and 1979 provides the affected manufacturers with an opportunity to adjust to the separate treatment requirement. Most domestic manufacturers which have captive import passenger automobiles have comparable domestically produced passenger automobiles also. The agency believes that if there is to be complete separate treatment of captive import and domestically produced nonpassenger automobiles, there should be a similar adjustment period first. One factor in determining the nature of such an adjustment period is the absence of any domestically produced nonpassenger automobiles that are comparable to the captive import nonpassenger automobiles.

The practical effect of not placing a limitation on counting the captive import nonpassenger automobiles in 1979 should be very small. The small, imported pickup truck market in this country, and Ford's and General Motors' share of it, have been fairly stable over the past several years. The agency believes that this stability

will continue through 1979. Therefore, the chances seem minimal of there being any significant increase in the number of captive import nonpassenger automobiles that could be attributed to the absence of a limitation. However, since the manufacturers believe that inclusion of captive imports will help them market a more fuel economical fleet of nonpassenger automobiles, the agency is willing to allow inclusion for model year 1979. Allowing such inclusion may result in some small fuel economy benefits. If it can be demonstrated in a petition for reconsideration that the absence of a limitation on the inclusion of captive imports would have a significant effect on the captive import market, the agency would consider amending the standard.

As to AMC's discrimination argument, it should be noted that while the inclusion of the imports may give a manufacturer importing nonpassenger automobiles with high fuel economy some added flexibility in achieving the standard, this flexibility is no greater than the flexibility that would be enjoyed by a manufacturer which domestically manufactures a number of nonpassenger automobiles with high fuel economy.

Finally, the agency wishes to emphasize again that the decision to include all captive import nonpassenger automobiles in the fleets of the domestic manufacturers which import them applies to model year 1979 only. As part of the rule-making to begin this summer regarding nonpassenger automobile standards for after 1979, the agency is considering establishing a limitation similar to the one for captive import passenger automobiles in 1978 and 1979 and providing for completely separate treatment beginning in the early 1980's. In this connection, the agency will be gathering information regarding the desirability of this approach, and an appropriate base period, similar to the one specified in section 503(b)(2)(B) of the Act, for the purpose of calculating the limitation.

*Classes of nonpassenger automobiles.* In the NPRM, the agency proposed establishing a standard for nonpassenger automobiles as a single class. The agency stated that it did not have sufficient information to assess the desirability or other implications of a multiple class system, nor had it fully assessed the potential criteria for

differentiating between or among classes, or the effect that a multiple classification system would have on the ability of a manufacturer to balance vehicles with high and low fuel economy.

Several comments discussed the classification issues which were raised in the NPRM. General Motors favored a single class for all nonpassenger automobiles, because such a system would allow a manufacturer maximum flexibility in meeting a standard. General Motors pointed out that a single class would enable the manufacturer to concentrate efforts for fuel economy improvement on its high volume products, while still being able to produce low volume, low fuel economy vehicles. General Motors indicated that a manufacturer might stop producing low volume, low fuel economy nonpassenger automobiles if those nonpassenger automobiles could not be balanced against other, more fuel economical nonpassenger automobiles. AMC argued that a single classification system favored large volume manufacturers with a broad product line which could balance low fuel economy vehicles against high fuel economy vehicles. AMC also argued that the vehicles which it produces, four-wheel drive, general utility jeep-type vehicles should be placed in a separate class because these vehicles were inherently less fuel economical than nonpassenger automobiles in general.

After considering these comments, as well as comments from International Harvester and Ford relating to separate classification, the agency has decided to establish a separate class for four-wheel drive, jeep-type vehicles. Because the agency intends that only four-wheel drive jeep-type vehicles, and not other four-wheel drive vehicles, such as some pickup trucks, be eligible for the separate class, the agency will allow only vehicles with wheelbases less than 110 inches to be eligible for the separate class. Each manufacturer of jeep-type vehicles will have the option of including those vehicles in the separate class, or including those vehicles in the general class of nonpassenger automobiles. In this way, the problems of both the manufacturer with a broad product line and the manufacturer with a narrow product line can be accommodated consistent with the purposes of Title V.

The basis for this decision is described below. The agency wishes to emphasize that the approach taken to the classification issue in this instance will not necessarily be used in the future when considering other manifestations of the classification issue.

Considering whether to establish a separate class for four-wheel drive, jeep-type vehicles brought into focus a problem in the analytical basis of the nonpassenger automobile fuel economy program. On the one hand, section 502(b) clearly gives the agency the authority to establish separate classes of nonpassenger automobiles with each class having a separate standard. This grant of authority recognizes that there are some vehicles which have characteristics in some way related to fuel economy making them either very fuel economical or very fuel uneconomical, which may justify their being subject to a special standard. On the other hand, the fact that standards must be *average* fuel economy standards indicates that the manufacturers should be given some opportunity to balance vehicles with differing fuel economies to ensure, consistent with the need to conserve energy, that a reasonable variety of vehicle types can be produced to satisfy consumer demand.

In consideration of this problem, the agency made the following analysis. In the case of four-wheel drive, jeep-type vehicles, the agency considered whether the vehicles were necessarily low performers (in terms of fuel economy) as compared to nonpassenger automobiles as a group. After considering the relevant comments and other information concerning these vehicles, the agency determined that these vehicles were inherently low fuel performing vehicles in comparison with nonpassenger automobiles in general, due to characteristics such as four-wheel drive and high drive ratios.

After determining that the general utility vehicles had special characteristics relating to fuel economy which could justify a separate standard, the agency next considered the manufacturers of the vehicles to determine whether all nonpassenger automobile manufacturers produce vehicles against which the low performing vehicles could be balanced. A single average fuel economy standard based on the performance of a variety

of nonpassenger automobiles of both inherently high and inherently low fuel economy may not be feasible for a manufacturer of only the inherently low fuel economy nonpassenger automobiles. The manufacturer of only inherently low fuel economy vehicles would not be able to perform the balancing that was assumed in developing the standard, and would therefore be unable to meet the standard. The conference report admonishes the Administrator to weigh the benefits to the Nation of a given fuel economy standard against the difficulties of individual manufacturers in meeting the standard. In doing so, he is cautioned to consider the competitive and national economic implications of the standards that might severely strain any manufacturer. (S. Rept. No. 516, 94th Cong., 1st Sess. 154-155 (1975)).

AMC is a manufacturer of four-wheel drive, jeep-type vehicles, which does not produce a significant number of high fuel economy vehicles against which its Jeep CJ could be balanced. Therefore, in light of the considerations discussed above, the agency deems the four-wheel drive, jeep-type vehicle to be an appropriate candidate for separate classification.

The agency also considered the effect of a separate classification on Toyota, another manufacturer of a general utility, jeep-type vehicle. Toyota produces mostly very high fuel economy nonpassenger automobiles, against which their Land Cruiser, which makes up approximately 17 percent of their total nonpassenger automobile production, can be balanced. In addition, the Land Cruiser is much heavier and has substantially lower fuel economy than the AMC Jeep CJ. Because the Jeep CJ represents a much larger part of the four-wheel drive, jeep-type vehicle market, the maximum feasible level of fuel economy would be influenced more by the Jeep CJ than the Land Cruiser. The agency believes that Toyota would be unlikely to spend substantial resources to improve the fuel economy of the Land Cruiser to the level where it could comply with the standard because that vehicle represents such a small portion of the Toyota fleet. Therefore, the agency believes it likely that Toyota would abandon the general utility, jeep-type vehicle market in this country rather than improve the fuel economy of the Land

Cruiser, or pay a substantial civil penalty. The effect of Toyota's leaving the market would be to improve total average fuel economy of the nonpassenger automobile industry only slightly, but reduce competition in the general utility, jeep-type market under 6000 GVWR from two significant competitors to one. (Although Chrysler produces a four-wheel drive, general utility vehicle, Chrysler is not considered a significant competitive force since only 1700 of their vehicles were sold in model year 1976. Moreover, Chrysler's response to a standard for jeep-type vehicles is very difficult to gauge. Chrysler would have to improve fuel economy less than Toyota, but the Chrysler fleet of jeep-type vehicles is very small.) The agency believes that this lessening of competition should be avoided if possible, consistent with the need to conserve energy.

Therefore, the agency has given the manufacturers the option of including their four-wheel drive, jeep-type vehicles in the special class for such vehicles, or in the overall nonpassenger automobile class. In this way, AMC could meet a standard that was appropriate for its Jeep CJ, and Toyota would be able to balance the fuel economy of its Land Cruiser against the fuel economies of its highly fuel economical other nonpassenger automobiles if it chose to do so. By so doing, Toyota would be more likely to stay in the market.

The agency wishes to point out that the analysis leading to the decision to treat four-wheel drive, jeep-type vehicles as a separate class is closely tied to the language and purpose of Title V. Thus, the agency expresses no opinion as to whether such vehicles should be treated separately for other regulatory purposes, such as safety or emissions control.

A final point must be made. Although the agency has determined that certain characteristics of four-wheel drive, jeep-type vehicles result in those vehicles having an inherently lower fuel economy and therefore a lower fuel economy standard than more numerous nonpassenger automobiles, such as pickup trucks and vans, the jeep-type vehicles will still be expected to have improved fuel economy. The agency believes that these vehicles can improve fuel economy

through weight reduction, technological improvements, and performance reductions consistent with their intended use.

*Responsibility for compliance.* Each manufacturer is responsible for the fuel economy of the complete automobiles that it produces in a single stage. With respect to automobiles manufactured by two or more manufacturers, the agency has issued a proposed rule that would, in most circumstances, place the responsibility for their fuel economy on the manufacturer of the incomplete automobile (frame and chassis structure, power train, steering system, suspension system, and braking system). (Notice of Proposed Rulemaking, *Manufacture of Multistage Automobiles*, 42 FR 9010, February 14, 1977.) Under the contemplated scheme, such a manufacturer must determine the fuel economy of the automobiles it manufactures and include those automobiles in its fleet in calculating its average fuel economy. The incomplete vehicle manufacturer must also specify a maximum curb weight and a maximum frontal area with which the vehicle is to be completed. If the final stage manufacturer completes the automobile so as to exceed either maximum or if it sells the automobile as one manufactured in a model year subsequent to the model year during which the incomplete vehicle manufacturer produced the incomplete vehicle, that final stage manufacturer would then become the manufacturer of the automobile for purposes of Title V.

*Measures to Improve Fuel Economy.* In the NPRM, the NHTSA discussed several methods which could be used by manufacturers of nonpassenger automobiles to improve the average fuel economy of their nonpassenger automobile fleets. These methods included such techniques as technological improvements, weight reduction, and performance reductions. Many comments directed at these discussions of fuel economy improvement techniques were received from manufacturers of nonpassenger automobiles. Virtually all these comments made the point that the NHTSA, in one way or another, had overstated the potential for fuel economy improvement in nonpassenger automobiles.

It is important to put the assessment of fuel economy improvement contained in the NPRM

in the proper perspective. The NPRM proposed an average fuel economy standard of 18.7 mpg. This proposed standard was intended to be set at a level that all manufacturers could meet without substantially modifying their product plans for model year 1979. The 18.7 mpg standard also assumed that there would be no adverse fuel economy effects resulting from the emissions standard and fuel economy testing procedures established by the EPA for model year 1979. In developing the proposed standard, NHTSA performed an engineering analysis to determine the appropriate level at which to set the standard consistent with that intention and assumption. This engineering analysis, which contained the discussion of the fuel economy improvement measures that were criticized by the commenters, concluded that those manufacturers that did not indicate a planned level of fuel economy of 18.7 mpg for model year 1979 could achieve that level without a substantial modification of their product plans (41 FR 52092). The NPRM made it clear that the NHTSA analysis of fuel economy potential did not depend on manufacturers' employing any particular method or methods of fuel economy improvement. The NPRM clearly stated:

The agency wishes to emphasize that the proposed standard is a performance standard and, therefore, that the manufacturers would not be required to take any particular step discussed below. It is anticipated, however, that each manufacturer would take one or more of the steps and place its own unique emphasis on each of those steps. Thus, the fuel economy improvements derived from those steps by a particular manufacturer would vary from the percentage fuel economy improvements as calculated by the agency.

Thus, the discussion of methods by which fuel economy could be improved was only a general discussion of how some manufacturers of nonpassenger automobiles could modify their product plans slightly to achieve an average fuel economy of 18.7 mpg by model year 1979. Although, in general, weight reduction, performance reduction, technological improvements, and aerodynamic improvements are the basic methods to

improve automotive fuel economy, the discussion in the NPRM was clearly not an exhaustive list of the details of fuel economy improvement possibilities, nor a directive to manufacturers instructing them on how to improve fuel economy. The agency anticipated that each manufacturer would achieve 18.7 mpg as it determined was best for itself.

The comments by the manufacturers to the NPRM indicate that the manufacturers will be able to achieve an average fuel economy of at least 18.7 mpg, assuming no fuel economy consequences due to emissions standards and testing procedures. Ford and General Motors each recommended a standard which they derived by reducing the proposed 18.7 mpg standard by the claimed effects of EPA's actions regarding emissions and testing procedures for model year 1979. Thus, both Ford and General Motors appear to assume that they will be able to achieve an average fuel economy of at least 18.7 mpg, excluding the possible effects of the 1979 emissions standard and test procedures. An analysis of Chrysler's comments leads to the same apparent assumption that at least 18.7 mpg is achievable by 1979. Chrysler projected an average fuel economy standard for model year 1979 of 16.5 mpg, assuming 1979 emissions standards and testing procedures. Chrysler stated that the change in emissions standards from 1976 to 1979 would result in a fuel economy loss of approximately 5 percent, and the change in testing procedures would result in a measured fuel economy loss of 8 percent. If those fuel economy losses, totalling 13 percent, are taken out of the Chrysler projection, their projection would be 19 mpg in 1979, under 1976 emissions standards and test procedures.

Thus, although Ford, General Motors, and Chrysler all criticized the NHTSA analysis of fuel economy improvement potential, those companies did not claim that they were incapable of reaching at least 18.7 mpg. Indeed, they tacitly agreed that 18.7 mpg, under 1976 emissions standards and test procedures, is achievable. Therefore, there is no need for the NHTSA to change the final standard for model year 1979 in light of those comments. The proper level of

the standard will depend on whether changes in the emissions standards or testing procedures result in reductions in fuel economy, not whether the NHTSA has correctly evaluated the fuel economy improvement potential through a particular combination of a variety of specified measures. However, the agency still believes, based on its analysis and considering the comments, that an average fuel economy level of 18.7 mpg, under 1976 emissions standards and testing procedures, is achievable without significant changes in product plans.

It is important to note that many of the comments received in this area are relevant to fuel economy standards for model years beyond 1979. They will be considered in connection with the development of those standards.

*Effect of Federal Emissions Standards and Testing Procedures.* EPA has established more stringent emission standards for model year 1979. EPA has also modified the testing procedures for measuring emissions for nonpassenger automobiles in model year 1979 (December 28, 1976, *Federal Register* 56316). The test procedure changes establish a higher road load horsepower requirement for test vehicles than the previous year. On the basis of various studies, EPA has concluded that the revised road load horsepower requirement is a more accurate description of conditions which an in-use vehicle experiences. Aside from a small increase in NOx any effect that the test procedure change has on fuel economy is a *measured* effect only; it has no impact on real, in-use fuel consumption of a vehicle.

The standard proposed by the NHTSA was based on the assumption that changes made by the EPA in the MY 1979 emissions standard and testing procedures applicable to nonpassenger automobiles would impose no fuel economy penalty or testing effect on vehicles of the manufacturers. NHTSA recognized, however, that this assumption was subject to some doubt, and indicated a willingness to revise the standard to take into account any such penalty or effect actually shown to exist. Comments and information on the existence and magnitude of these penalties were requested from all interested parties.

Comments were received from General Motors, Ford, Chrysler, AMC and International Harvester. Every manufacturer challenged the assumption that the revised EPA emissions standard and testing procedures would have no effect on average fuel economy. International Harvester believes the penalty due to the emission standard will be 10-15 percent. AMC estimated the combined penalty to be greater than 10 percent. The estimated fuel economy penalty due to the emission standard, including the effect of increased NOx emissions resulting from higher engine loading due to the revised test procedures, was 5 percent for General Motors, 3 percent for Ford, and 7 percent for Chrysler. General Motors estimates the fuel economy effect for revised testing to be 6.2 percent. Ford estimates the testing effect to be 9 percent. Chrysler estimates the testing effect at 6 percent. General Motors, Ford and Chrysler also submitted to the NHTSA the data upon which these estimates were made.

After a consideration of technology that will be available in model year 1979, and the ability to optimize engine calibration, and a careful analysis of the data supplied by the manufacturers, the NHTSA has concluded that the manufacturers have failed to show that there will be any penalty due to the tighter emissions standard. However, they have shown an effect of 8 percent due to the revised testing procedures.

The change in the EPA emissions standard that affects fuel economy is the lowering of the standard for NOx from 3.1 grams per mile (gpm) to 2.3 gpm. It is not disputed that meeting a more stringent NOx standard can result in taking product actions that would cause a degradation of fuel economy from levels achieved by a vehicle meeting a less stringent standard. However, it is also true that a number of product actions related to emissions control can be taken to restore the lost fuel economy. For example, where NOx is reduced through engine recalibration, which can result in lost fuel economy, the recalibration can be optimized to eliminate, or at least reduce, the fuel economy penalty. This optimization, or fine tuning, has occurred in the past as manufacturers have accumulated experience with the engine recalibration. Also, emissions control systems improve as the manufac-

turers gain experience with them, which can result in improved NOx control without a loss of fuel economy. Moreover, the use of existing emissions control systems, such as back pressure or proportional exhaust gas recirculation (EGR) systems, can be expanded for nonpassenger automobiles. Finally, advance emission control systems, such as three-way catalysts or electronic EGR, exist and could be used for nonpassenger automobiles, although the agency recognizes that such advanced systems may not be cost effective in controlling NOx to meet a standard of 2.3 gpm.

In light of these possibilities for achieving increased emissions control while maintaining fuel economy, the agency assumed that by model year 1979 manufacturers would be able to meet the 2.3 gpm NOx standard without a degradation in fuel economy from the level achievable when the NOx standard was 3.1 gpm. The NPRM solicited comments on this assumption of no fuel economy loss due to a tightened NOx standard. Although manufacturers submitted a significant amount of information on the issue, the manufacturers failed to show that a NOx standard of 2.3 gpm would necessarily result in a loss of fuel economy.

General Motors tested five different vehicles to establish the magnitude of the fuel economy penalty due to the revised emission standard. The vehicles were tested before and after recalibration to reduce NOx from the level required to meet the 3.1 gpm NOx standard to the level required to meet the 2.3 gpm NOx standard. The recalibration consisted of increased EGR flow rates and or spark retard. General Motors' test data is inconsistent with regard to the relationship between reduction in NOx and fuel economy. One vehicle met the new NOx standard as delivered and was not recalibrated from the calibrations used to meet the 3.1 gpm standard. Two vehicles of the same engine family showed small reductions in fuel economy and one vehicle showed a large reduction in fuel economy. General Motors averaged the data with no weighting to reflect sales mix and extrapolated the results to the percent NOx reduction for the MY 1979 emission standard level since the arithmetic averaged NOx reductions in their test did not meet a level required for the 2.3 gpm standard. The General Motors testing methodology was unsat-

isfactory because the sample tested did not adequately represent General Motors' fleet and no replicate tests and only one replicate vehicle configuration were included. Additionally, using a non-weighted average is improper unless the results from one engine family are representative of all engine families. This was not shown to be the case for General Motors data, which indicated a wide range of results. In addition to the inconsistency of the test results, and the flaws in methodology, the other serious deficiencies in the General Motors test program were that it considered no improved emission control technology, especially improved EGR systems, and the recalibrations were not optimized.

Ford tested five nonpassenger automobiles in three engine families with one replicate vehicle configuration in two of the engine families. Ford data were the best submitted by a manufacturer since they had replicate vehicles and repeat tests (from two to four of each). Again, however, not all vehicle configurations were represented. Ford's vehicle recalibration was successful in meeting target emission levels although one vehicle met the revised emission standard by a sufficient margin without recalibration. However, the recalibrations were performed on current emission control systems and no mention was made of improved EGR systems. Also, there was no evidence that the calibrations were optimized. For the replicate vehicles, there was considerable variability in the effect of the recalibrations. It was concluded that Ford data, like the GM data, demonstrated an inconsistent effect on fuel economy of meeting a NOx standard of 2.3 gpm and demonstrated wide vehicle variability. It was also noted that in one case a recalibration to reduce NOx emissions improved fuel economy. This is evidence that other calibrations were not optimized. Ford arrived at its claimed fuel economy penalty by arithmetically averaging the results of its tests. This is improper unless the same results are expected for each engine family. In addition to its test data, Ford supplied supplemental data on the effects of the tighter California emission standard on fuel economy. The NHTSA believes the data are of limited usefulness because they rely on existing emission control technology for the California fleet, which is a small portion of the

total fleet. Needs of the California fleet may not justify major changes in control techniques from those applied to the 49-state fleet. Moreover, the Ford data regarding California vehicles is inconsistent. Ford indicated that going from an engineering goal to meet a NOx standard of 3.1 gpm to a goal to meet a standard of 2.0 gpm in California resulted in a 10 percent reduction in fuel economy. However, Ford stated that the penalty from going from 3.1 to 2.3 for the 49-state fleet would result in a penalty of only 2 percent. In light of this discrepancy, the agency believes that comparisons with California vehicles are not particularly compelling.

Chrysler recalibrated three MY 1979 passenger cars from a 2.0 gpm NOx standard level to a 3.1 gpm NOx standard level and interpolated the resulting fuel economy penalty for a reduction in NOx from 3.1 gpm to 2.3 gpm. All vehicles were tested twice, but no identical vehicles or additional configurations were included. The results showed considerable variability in the claimed effect on fuel economy of the MY 1979 emission standard. The most serious deficiency, in NHTSA's opinion, is the fact that they tested passenger automobiles rather than nonpassenger automobiles. Besides the differences in attributes such as axle ratios between nonpassenger automobiles and passenger automobiles, the recalibration of model year 1977 vehicles ignores the improvements in the emission control systems and calibrations between MY 1976 and MY 1977 for passenger automobiles. Also, no allowance is made for similar improvements in nonpassenger automobiles emission control systems and calibration optimization by MY 1979. Chrysler also supplied a comparison of 49-state and California fleets of nonpassenger automobiles. This comparison is subject to the same criticism as for that of Ford.

NHTSA performed a statistical analysis of the data submitted by the manufacturers to assess the reliability of the data for estimating the level of penalty they claimed. A 95 percent confidence interval (i.e., the range of values within which the true level of any penalty lies with a 0.95 probability) was calculated for the claimed fuel economy penalty for each manufacturer and for the total fleet. The results of this analysis showed that even if the analysis consid-

ered improvements in emissions control technology and optimization of recalibration, and even if the vehicles tested were representative of the manufacturers' fleets, the claims of the manufacturers are not supported by the data because of the wide range of the confidence interval.

In conclusion, NHTSA considers the manufacturers' claims of a fuel economy penalty resulting from the need to reduce NOx emissions in MY 1979 to be unsupported by their submissions. NHTSA considers the results of a proper recalibration program more compelling than any other means of supporting a claim. The recalibration programs undertaken by the manufacturers were in some cases unsuccessful in reducing NOx emission to the levels desired. More importantly, the recalibrations performed neither demonstrate nor anticipate optimization of calibration nor new technology. Given the fact that the recalibration programs were inconsistent and inconclusive, NHTSA must rely on recognizing past accomplishments and on anticipating new technology. EPA has stated in their rulemaking action for the MY 1979 emission standard that there does not have to be a fuel economy penalty associated with its standard if the manufacturers have enough leadtime to optimize calibrations and control system designs. NHTSA agrees that there doesn't have to be a penalty if leadtime exists for recalibration optimization. Past performance indicates sufficient leadtime exists. However, NHTSA does not say there will be no penalty. Rather, the agency believes that the manufacturers have not demonstrated a penalty. The average fuel economy standard for model year 1979 has been set with no reduction included for the MY 1979 emission standard. However, the agency is open to submissions of further test data and leadtime information that will support the manufacturers' claims.

Unlike the situation with the change in emissions standards, the change in testing procedures, which includes an increase in the roadload horsepower setting of approximately 30 percent, will definitely result in a decrease in measured fuel economy. Manufacturers submitted data to show the effect of the revised testing procedure on measured fuel economy. The agency performed an analysis of the data submitted by the manufacturers.

The agency believes that the data submitted by Ford are the most meaningful because of the large number of vehicles tested (96 vehicles) in 550 separate tests, the testing of many identical vehicles, and because many of the tests were repeated. This amount of data enabled the NHTSA to use a statistical analysis procedure to show that if a 95 percent confidence interval for the effect on fuel economy for the entire fleet of Ford nonpassenger automobiles was computed, this fleet average effect would have a narrow confidence interval range, and would be considered to be highly reliable. The General Motors data are considered less reliable because of the fewer number of vehicles tested, the fact that there were no tests on identical vehicles, no tests were duplicated, and the data are highly variable. Chrysler's data are considered less reliable than Ford's because only 2 of 3 engine families were tested, and there were no tests of all vehicle configurations or duplicate tests. After a careful analysis of these results, the NHTSA believes the manufacturers have demonstrated an 8 percent fuel economy effect and the average fuel economy standard has been reduced to reflect this effect. This effect reflects primarily the results of the Ford analysis. However, for use on an industrywide basis, the effect demonstrated by Ford has been reduced slightly in light of differences between the Ford fleet and the industry fleet. For example, Ford produces a greater percentage of 6-cylinder engines than the industry average. In addition, Ford's average frontal area is larger than the industry average, which would cause a higher percentage of increase in road load. Both of these facts would result in a greater fuel economy effect. Also Ford produces a higher percentage of 4,000 pound inertia weight nonpassenger automobiles than the industry as a whole does. The percent increase in road load horsepower is greater for these lighter vehicles. Thus, the effect of the testing procedures on the industry average fuel economy would be slightly less than on Ford's average fuel economy.

Although the NHTSA is applying this correction for model year 1979, it will be revised in future model years if further data or analysis indicate that is appropriate.



*Effect of California emissions standards.* Ford stated that the 1979 emissions standards for California, which are more stringent than the 1979 Federal standards, will result in its California fleet of nonpassenger automobiles having an average fuel economy approximately 6 percent lower than its Federal fleet. Ford stated that the effect of the California fleet would be to lower the average fuel economy of its 50-state fleet by 0.1 mpg. Chrysler provided information showing that its California fleet will lower the average fuel economy of its 50-state fleet by 0.3 mpg. The NHTSA recognizes that emissions requirements for vehicles sold in California and the different mix of vehicles sold in California may have the effect of lowering the 50-state average fuel economy of a manufacturer of nonpassenger automobiles. However, neither Ford nor Chrysler made an adequate case for lowering the proposed standard because of the effect of the California vehicles. Ford, in information provided to the NHTSA in response to the agency's questionnaire circulated last summer, projected an average fuel economy for its nonpassenger automobiles manufactured in model year 1979 in excess of 19 mpg, without considering the effects of the 1979 Federal emissions standards and testing procedures. Although Ford's California vehicles may lower its 50-state average fuel economy by 0.1 mpg, Ford will still be capable of achieving a level of fuel economy under 1976 Federal emissions standards and testing procedures that is higher than the 18.7 proposed in the NPRM. Likewise, although Chrysler indicated some effect of the California standards on its average fuel economy, Chrysler still projected an average fuel economy for 1979 of 16.5 mpg, based on 1979 Federal testing procedures and emissions standards. If the fuel economy penalty and testing penalty estimated by Chrysler for emissions and testing procedures of 13 percent is taken out, Chrysler in effect projects a fuel economy of 19.0 mpg for 1979. Therefore, although California standards may make achievement of the level of 18.7 mpg, under 1976 Federal emissions standards and testing procedures, more difficult, there is no showing by Chrysler or Ford that the California standards make achievement of the level of 18.7 mpg infeasible.

*Comparison of proposed standard for nonpassenger automobiles with standard established for passenger automobiles.* In section 502(a)(1) of Title V, Congress established an average fuel economy standard for passenger automobiles manufactured in model year 1979 of 19.0 mpg. Congress established no standards for nonpassenger automobiles. Several commenters have argued that the proposed average fuel economy standard for nonpassenger automobiles of 18.7 mpg was too high, based on a comparison between the proposed nonpassenger automobile standard and the passenger automobile standard established by Congress. General Motors stated that there was an average difference in inertia weight of 500 pounds between passenger automobiles and nonpassenger automobiles and if the fuel economy costs of the extra 500 pounds were considered, the fuel economy standard for nonpassenger automobiles should be no more than 16.9 mpg to be consistent with the standard for passenger automobiles. Chrysler argued that an average fuel economy standard for nonpassenger automobiles which was only 0.3 mpg below that set for passenger automobiles failed to take into account the difference between passenger and nonpassenger automobiles. In particular, Chrysler stated that if the nonpassenger automobile standard remained at 18.7 mpg, after considering the effect of emissions standards and testing procedures that will be in effect in model year 1979, that standard would be equivalent to a standard of 21 mpg calculated under the emissions standards and testing procedures which Chrysler stated were used by Congress in establishing the passenger automobile standard of 19.0 mpg.

The NHTSA believes that these comments do not contain a legitimate reason for lowering the proposed fuel economy standard for nonpassenger automobiles. Title V does not require, or even hint, that the fuel economy standard which the agency establishes for nonpassenger automobiles must be comparable to the standard which Congress set for passenger automobiles. What Title V requires is that average fuel economy standards established by the agency for nonpassenger automobiles be set at the level of maximum feasible fuel economy. This is what the agency has done. In addition, because the agency is analyzing fuel economy potential on the basis of

data that are current now, rather than data that were current in 1975 when Title V was drafted, the agency believes that its own analysis of the proper level of fuel economy is deserving of greater weight than the earlier analysis of Congress.

*Cost and Benefit Analysis.* The NPRM contained a summary of costs and benefits concerning the proposed average fuel economy standard for nonpassenger automobiles. Ford stated that the NHTSA overstated the benefits and understated the costs of the proposed standard. Specifically, Ford stated that (1) the value of the gasoline saved was overstated because the price of gasoline assumed by NHTSA, \$6.65 per gallon, included an excise tax of \$1.13 per gallon, (2) the mileage used for calculating fuel savings should reflect the fact that annual vehicle mileage decreases as the vehicle grows older, and that the assumed vehicle life should reflect vehicle mortality statistics rather than an average life of ten years, (3) performance reductions in vehicles are not "virtually cost free," as stated in the NPRM, but have increased costs to consumers through reduced carrying capacity and increased trip time, (4) the cost of meeting the standard, if the proposed standard of 18.7 mpg is not reduced because of the penalties from 1979 emissions standards and testing procedures, will be at least \$100,000, rather than the \$12,000 assumed by NHTSA, (5) the cost increase due to meeting the 1979 emission standards is higher than assumed by the NHTSA, and (6) the weight reduction which NHTSA speculated might be necessary for General Motors to meet the standard can not necessarily be achieved for the cost estimated by NHTSA (\$10,000-15,000 variable cost per vehicle and \$500,000 investment), and that there is little correlation among particular weight reduction, variable costs, and investment levels associated with different components.

With respect to Ford's comment on the proper value of gasoline, it should be noted that the benefit and cost summary that was contained in the NPRM related to benefits and costs to consumers. Therefore, since consumers pay the excise tax on gasoline, it is proper to include that tax in a computation of the value of saved gasoline to the consumer. It is also important to

note that the NHTSA considers \$6.65 per gallon to be a conservative estimate of the value of gasoline. The diminishing gasoline resources, and the uncertainty of the availability of petroleum for manufacturing gasoline, which led Congress to establish the mandatory fuel economy program, give the agency reason to believe that the current pump price of gasoline is not an adequate indicator of its true social value.

The annual mileage figure used by the agency to calculate fuel savings was found in the Census of Transportation, 1972 Truck Inventory and Use Survey, published by the United States Bureau of the Census. Although annual vehicle mileage decreases with the age of the vehicle, assuming constant 11,000 miles per year for the vehicles' life does not result in an inaccurate evaluation of total costs. It is the consideration of the total costs of the standard which the agency must consider.

The summary of costs and benefits of the proposed standard considered only quantifiable expenditures and savings related to the standard. Although Ford is correct that there may be some additional costs of the improved fuel economy in terms of reduced utility, these nonquantifiable costs were not contained in the summary of costs and benefits. Since the final rule, like the proposed rule, is based upon the manufacturers' product plans for model year 1979, these performance costs are not expected to be great.

Ford contended that meeting the average fuel economy standards would result in an average retail price equivalent increase of at least \$100,000 per vehicle, if the proposed standard of 18.7 mpg were not reduced for emissions and testing penalties. Since the final standard reflects a substantial reduction from the proposed standard of 8 percent, due to the change in the fuel economy testing procedures, the agency assumes that the estimated price increase of \$100,000 is no longer applicable. Although some price increase may be likely to meet the final standard, there is nothing in the Ford comment to indicate that the NHTSA estimate of \$21,000 per vehicle retail price increase (\$12 cost to the manufacturer, with a markup of 100 percent) is an incorrect estimate of that increase.

With respect to the costs of fuel economy testing and compliance with emissions requirements, the figures assumed were supplied to NHTSA by the EPA, and represent its estimate of the average industry costs. The EPA estimate includes allowances for reuse of the vehicle. The Ford comment does not seem to recognize that an entirely new vehicle is not necessary to test each base level. Changes in recalibration and axle ratios can be made to vehicles, and allow some of the testing costs to be spread over a number of tests. Therefore, Ford's estimate of testing costs seems high. However, even assuming that Ford's estimates of the cost of testing are correct, that higher testing cost is not a basis for modifying the standard, or deciding not to establish a standard. The agency is required by section 502(b) of Title V to establish an average fuel economy standard for nonpassenger automobiles manufactured in model year 1979. Therefore, even assuming that Ford's estimate of testing costs represents a legitimate upper limit of the range of reasonable estimates of testing costs, the agency would not modify its decisions on the basis of the Ford cost figures.

With respect to Ford's contention that there is little correlation between particular weight reduction, variable cost, and investment level, the agency realized that some ways of taking weight out of a nonpassenger automobile are more expensive than others. In evaluating the cost of weight reduction, the agency assumed that the manufacturer would attempt to use less expensive techniques of weight reduction.

In light of the foregoing, Title 49, Code of Federal Regulations, is amended by adding a new Part 533, *Average Fuel Economy Standards for Nonpassenger Automobiles*, . . .

(Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657) ; Sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2002) ; delegation of authority at 41 FR 25015, June 22, 1976.)

Issued on March 8, 1977.

John W. Snow  
Administrator  
National Highway Traffic  
Safety Administration  
**42 F.R. 13807**  
**March 14, 1977**



## PREAMBLE TO PART 533—LIGHT TRUCK FUEL ECONOMY STANDARDS

(Docket No. FE 77-05; Notice 5)

This notice amends the definition of "basic engine," as it appears in the light truck fuel economy standards of the National Highway Traffic Safety Administration. The amendment is intended to clarify the applicability of various light truck fuel economy standards for the 1980 and 1981 model years.

*Date:* This amendment is effective October 10, 1978.

For further information contact:

Roger Fairchild, Office of Chief Counsel,  
National Highway Traffic Safety Administration,  
400 Seventh Street, S.W., Washington,  
D.C. 20590 (202-426-2992).

*Supplementary information:* On March 23, 1978, the agency published a definition of "basic engine" as part of its fuel economy standards for 1980-81 model year light trucks. See 43 F.R. 11995, 49 CFR 533.4. That definition is relevant solely to the determination of which light trucks are "limited product line light trucks," and therefore subject to less stringent fuel economy standards. The latter definition was intended to identify the class of light trucks manufactured by companies which had not had experience designing and applying the advanced emission control systems necessary to meet current and near-term future passenger automobile emission standards. Those systems will be required for many light trucks for the first time beginning in model year 1979. The agency had International Harvester primarily in mind, given the company's unique problems resulting from its limited sales volume, restricted product line, and the fact that its engines are derivatives of medium duty truck (above 10,000 pounds GVWR) engines. See 43 F.R. 11998.

The original "basic engine" definition incorporates the definition appearing in the Environmental Protection Agency's regulation, 40 CFR

600.002-80(21), which defines that term as "a unique combination of manufacturer, engine displacement, number of cylinders, fuel system (as distinguished by number of carburetor barrels or use of fuel injection), catalyst usage, and other engine and emission control system characteristics specified by the Administrator." "Limited product line light truck" is in turn defined by NHTSA as "a light truck manufactured by a manufacturer whose light truck fleet is powered exclusively by basic engines which are not also used in passenger automobiles." See 49 CFR 533.4.

Although the EPA regulation defining "basic engine" does not on its face present any problem in NHTSA's definitional scheme, it grants EPA the authority to designate additional criteria to distinguish "basic engines". EPA has exercised this authority to classify otherwise identical engines used in both cars and trucks as two separate "basic engines," one for passenger cars, and the other for trucks. The effect of this administrative interpretation of the EPA regulation is arguably to cause *virtually all* light trucks to be "limited product line light trucks" under NHTSA's definitions, contrary to NHTSA's expressed limited intent. Therefore, NHTSA is revising the "basic engine" definition to exclude the additional characteristics specified by the EPA Administrator in that agency's advisory circular.

Since this amendment is in the nature of technical correction and makes the regulations conform to NHTSA's originally expressed intent, and because of the need to immediately clarify any ambiguity in the regulation, it is determined that a notice of proposed rulemaking is unnecessary and contrary to the public interest, within the meaning of 5 U.S.C. 553(b). Therefore, this amendment will be effective immediately.

The National Highway Traffic Safety Administration has determined that this document does not contain a significant regulation requiring a regulatory analysis under Executive Order 12044. Furthermore, this action does not require an environmental impact statement under the National Environmental Policy Act (49 U.S.C. 4321 et seq).

In consideration of the foregoing, 49 CFR Chapter V is amended. . . .

Authority: Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); sec. 301, Pub. L. 94-163, 89

Stat. 901 (15 U.S.C. 2002); delegation of authority at 41 FR 25015, June 22, 1976.

The principal drafter of this document is Roger C. Fairchild.

Issued on October 2, 1978.

Joan Claybrook  
Administrator

**43 F.R. 46546**  
**October 10, 1978**

## PREAMBLE TO PART 533—LIGHT TRUCK FUEL ECONOMY STANDARDS

(Docket No. FE 77-5; Notice 7)

*Action:* Final rule.

*Summary:* This notice reduces the average fuel economy standards applicable to two wheel drive light trucks manufactured in model year 1981. This action is taken in response to a petition from Chrysler Corporation providing new information which indicates that their capability to improve the fuel economy of those trucks is less than had been determined in the earlier rule-making. This notice also denies Chrysler's request to reduce the fuel economy standards applicable to four wheel drive light trucks. The reduction of the two wheel drive standard is intended to produce standards which are still at the maximum feasible levels achievable by the manufacturers taking the new information into account.

*Dates:* These standards are applicable for the 1981 model year.

*For further information contact:*

Mr. Francis J. Turpin, Office of Automotive Fuel Economy Standards (NRM-21), National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-472-6902).

*Supplementary information:*

### BACKGROUND

On March 23, 1978, in 43 FR 11995, NHTSA established fuel economy standards for light trucks manufactured in the 1980-81 model years. The 1981 standards were established at levels of 18.0 mpg for two-wheel drive (4X2) light trucks and 15.5 mpg for four-wheel drive (4X4) light trucks. Vehicles subject to the standards include pick-up trucks, vans, and utility vehicles with gross vehicle weight ratings (GVWR) of up to and including 8500 pounds. The establishment of these standards is authorized by section 502(b) of the Motor Vehicle Information

and Cost Savings Act ("the Act"), 15 U.S.C. 2002(b). The Act requires that standards be established for each model year at the "maximum feasible average fuel economy level," considering technological feasibility, economic practicability, the effects of other Federal motor vehicle standards on fuel economy, and the need of the Nation to conserve energy.

The fuel economy standards were largely based on the plans of the manufacturers to make specified improvements to increase the fuel economy of their trucks. They were set under the presumption that the Environmental Protection Agency (EPA) would approve by January 1, 1980, the use of low friction lubricants in fuel economy testing under its procedures. The final rule provided that if approval were not given by that date, the standards would each be 0.5 mpg less, i.e., 17.5 mpg for 4X2's and 15.0 mpg for 4X4's. This reduction in the fuel economy standards would be made to account for the manufacturers' diminished fuel economy improvement capability should they not be permitted to obtain credit for the benefits associated with use of these lubricants.

On September 20, 1978, Chrysler requested that these standards be reduced to 16.5 and 14.5 mpg for 4X2's and 4X4's respectively. Chrysler claimed that without such a reduction, it would be required to either violate the standards or drastically curtail its sales of larger, less fuel efficient trucks. After ascertaining that Chrysler intended this request to be treated as a formal petition for rulemaking under the agency's procedures, the agency requested that specific information supporting the petition be submitted. Some of this information was submitted on November 24, 1978, and the agency initiated rulemaking on the petition on December 18, 1978. See 43 FR 58840. The notice did not propose any specific change in the standards. Rather, it

mentioned the reductions by Chrysler and invited comment on issues raised by that company's petition.

The agency also contacted the other vehicle manufacturers to determine whether they were having similar difficulties in working toward compliance with the 1981 standards. Ford projected being able to achieve 17.6 mpg for its 4X2 fleet by 1981, thereby complying with the standard only if the lubricant-related standard reduction occurred. That company projected being capable of obtaining only a 0.1 mpg benefit from the use of improved engine lubricants, rather than the 0.5 mpg projected by the agency. GM projected its "free market" improvement capability for 1981 to be only 16.2 mpg, despite the fact that it projected compliance with the 18 mpg standard a year ago. The main factors in the lower GM capability projection are its changed position on the feasibility of certain marketing actions to improve its fuel economy by 0.8 mpg by 1981 and a complete (and only partially explained) reversal of position on its ability to offset the effects of changes in light truck emission standards. In the case of the 4X4 standard, American Motors and Ford project compliance with the 15.5 mpg standard, while GM projected only 14.2 mpg, for the same reasons as in the case of the 4X2 standard.

#### SUMMARY OF DECISION

The 1981 1X2 standard is being reduced by 0.8 mpg to 17.2 and Chrysler's request for a reduction of the 1X4 standard is being denied. The agency agrees with the arguments presented by Chrysler and the other companies in most respects, the main exception being the issue of whether the use of improved lubricants could provide a fuel economy benefit for 1981 model year light trucks. In that case, the impact on the standards of the agency's disagreement is contingent upon whether the EPA permits the use of these lubricants in fuel economy testing by January 1, 1980. If EPA does not approve the lubricants, each of the standards would be 0.5 mpg less, i.e., the standards would be 16.7 mpg for 1X2's and 15.0 mpg for 4X1's.

The major differences between the basis for this decision and that for the prior rulemaking are (in order of magnitude of fuel economy

effect for Chrysler): reductions in expected fuel economy benefits from engine displacement or drive ratio reductions; engine efficiency improvements and weight reduction; errors in the agency's prior base-line or larger than anticipated effects of emission standards and test procedure changes; reduced benefits from aerodynamic and rolling resistance changes; changes in product mix; and changes in EPA fuel economy test procedures. Each of these areas resulted in a reduction in the agency's fuel economy improvement projections for Chrysler of from 0.1 mpg to 0.5 mpg, with the magnitude of the effect varying for the 4X2 and 4X4 fleets. Chrysler also provided information on certain fuel economy improvements which it plans to implement for the 1981 model year but which were not included in the agency's original standard-setting analysis. These items have been included in the agency's analysis of the Chrysler petition, and partially offset the effects of the previously mentioned reductions in fuel economy improvement potential. For the other manufacturers, the main factor causing their lowered projected capabilities is (in addition to the factors previously discussed) the agency's changed position on the effect of 1979 model year emission standards. While in the 1980-81 rulemaking, the agency concluded that the more stringent emission standards need not reduce fuel economy below pre-1979 levels, the agency now believes that a fuel economy impact of the more stringent 1979 emission standards exists and cannot be offset by 1981.

In deciding whether the standards should be reduced, the agency balanced the difficulties of the manufacturers in meeting the previously established standards against the benefits to the nation of compliance with the higher standards. In this case, it was decided that the marketing risks associated with meeting the higher 1X2 standard outweighed the potential energy savings.

The agency's analysis of the more significant areas of disagreement between the Chrysler petition and the conclusions drawn in the previous rulemaking to establish the 1981 standards follows. In conducting this analysis, the agency viewed the Chrysler petition as a continuation of the original rulemaking. If any changes were



to be made in the existing standards, the petitioner would have to demonstrate to the agency's satisfaction that the agency had erred in its original analysis of the maximum feasible level of average fuel economy achievable within the leadtime available from the issuance of the original final rule. A complete discussion of the technical basis for this decision is contained in the agency's Rulemaking Support Paper, copies of which are available from the individual listed as the "information contact" at the beginning of this notice.

### EXPLANATION OF DECISION

(a) *Reduction in engine displacement and drive ratios.* In establishing 1980 and 1981 standards in March 1978, the agency projected that the manufacturers could make reductions in the product of average engine displacement and final drive ratio (CID x N V) of approximately 10 percent, in addition to an amount made possible as vehicle weight is reduced (keeping vehicle performance relatively constant). In Chrysler's case, such a change was estimated to amount to a 16 percent reduction in CID x N V, producing a fuel economy gain of about 1.1 mpg for 4X2's. In the case of 4X4's, a 16.4 percent reduction was projected, for a 0.92 mpg benefit in fuel economy. These reductions were greater than those projected by Chrysler in the last rulemaking by a large amount, but the agency concluded that there was no reason to believe that Chrysler could not achieve performance levels commensurate with those of the other manufacturers. See Rulemaking Support Paper Supplement (RSPS) for the 1980-81 rulemaking, page III-163-6.

In its petition and related submissions, Chrysler has provided information from which the agency calculated Chrysler's planned reductions in CID x N V for model year 1981. These reductions appear to closely approximate the reductions projected by the agency in the last rulemaking (within about 1 percent). However, the agency's previous projections of CID x N V levels for Chrysler in 1981 and Chrysler's current planned levels are not directly comparable, since Chrysler's planned values include the effect of rerating about 10 percent of its truck fleet (principally those with the

highest CID and axle ratios) over the 8500-pound GVWR dividing line, an effect not considered in the 1980-81 rulemaking. Therefore, the agency attempted to determine whether Chrysler's planned reductions in CID x N V for 1981 were in fact the maximum feasible reductions, as required by the Act. In the 1980-81 rulemaking, the extent to which reductions in engine displacement or drive ratios could be implemented were determined to be limited by (a) minimum truck performance criteria (e.g., ability to pull a load up a steep grade), (b) emission problems with extremely low performance levels, (c) technical factors, which may produce diminishing fuel economy returns beyond some level of CID x N V reductions, and (d) market acceptability of trucks with lower acceleration characteristics, notwithstanding the ability of the truck to meet minimum functional requirements. See, e.g., DN-82, Att. II (GM).

A comparison of Chrysler's planned 1981 levels to those of the other manufacturers indicates that GM and Ford project CID x N V levels approximately 5 percent lower than Chrysler for both 4X2's and 4X4's, even though Chrysler's trucks are lighter than their competitors'. The Center for Auto Safety argues that Chrysler should be able to offset this discrepancy between their performance levels and their competitors. DN-90, p. 6.<sup>1</sup> The agency asked Chrysler why such reductions could not be made, and Chrysler responded that, according to their marketing experts, severe marketing problems would be encountered at lower CID x N V levels than those planned. DN-190. For each manufacturer, the CID x N V product is governed by the available engines, transmissions (e.g., overdrive) and axle ratios. Given the mix of engines produced by Chrysler, the agency believes that they face a greater marketing risk from performance reduction than do their competitors. The Chrysler

<sup>1</sup> The abbreviation "DN" followed by a number refers to the docket number of material in NHTSA docket FE-77-05-N06. This docket is located in Room 5108 of the Nassif Building, 400 Seventh Street, S.W., Washington, D.C., and is open to the public during normal business hours. References to the materials in the docket and other materials are intended as an aid to persons dealing with the voluminous materials in this rulemaking, and may not be exhaustive.

fleet is powered by 360, 318, and 225 cubic inch engines. Given the very large gap between the 318 and the 225, Chrysler's ability to shift consumers to the 225 from the 318, the key to any performance reduction, faces them with the very distinct possibility of losing customers to competitors with a more complete range of engines or, to competitors with engines smaller than their 318 but larger than their 225.

Although the agency (or anyone else for that matter) cannot quantify with certainty the magnitude of the marketing risk faced by Chrysler in attempting to make CID x N/V reductions greater than those it now plans, the agency is particularly concerned about the potential impacts on Chrysler's economic position of taking such marketing actions. At a time when its competitors are earning record profits, Chrysler has faced steady financial losses. Further, Chrysler's truck sales (particularly vans and other two-wheel drive light trucks) have been one of its more profitable operations, and erosion of its competitive position in that market segment could be especially harmful to that company. While GM and Ford face marketing risks in reducing the average CID x N/V of their truck fleets, the impacts of an erroneous marketing judgment by those companies on their long term financial viability is certainly far less than in the case of Chrysler. Therefore, the agency has adopted Chrysler's planned reductions in CID x N/V for its two-wheel drive fleet for this rulemaking.

The case for Chrysler's 4X1 fleet is somewhat different; however, Chrysler's own projection of its CID x N/V reductions for 1981 indicate that it expected to encounter a shift in its engine offerings (either through its own marketing efforts or through other changes in customer preference) resulting in an *increase* in the sales of its largest engine at the expense of its intermediate displacement engine. The agency recognizes that this projection was made prior to recent gasoline shortages, which has resulted in a serious drop in the demand for large trucks and engines. Now, the agency doubts that Chrysler could effectuate this adverse mix shift without encountering sales resistance, even if the promotion of the sale of fuel inefficient trucks were consistent with the law. Faced with the

current trend in the automobile and light truck market, the agency cannot accept Chrysler's unsupported projection of an engine mix shift toward larger displacement engines. By holding its engine mix constant for 4X4's (which may prove to be a conservative assumption) and by making minor axle ratio reductions consistent with those planned by the larger manufacturers, Chrysler should be able to make fuel economy improvements beyond those it projected in its petition and equivalent to those projected by the agency in the original 1980-81 rulemaking.

Chrysler also objected to the agency's projected benefit from a given level of CID x N/V reduction. DN-93, p. 12. Chrysler projected a lesser benefit for these reductions, based on an analysis of specific axle ratio changes or engine substitutions. The agency attempted to resolve this issue through a variety of methods, including an assessment of the effect of different axle ratios and engines on Chrysler's current fleet. These analyses indicate that the higher benefit for CID x N/V reductions projected by NHTSA in the original rulemaking on the 1980-81 standards is valid or even conservative. EPA's analysis showed a higher benefit for engine displacement reductions than did NHTSA's but a lower benefit for axle ratio reductions. The agency did not rely on EPA's analysis of the effect of N/V reductions on fuel economy, since that analysis was based solely on passenger car data (reflecting generally lower N/V values). DN-169. GM information also supports the agency's conclusion on this point. DN-81, p. 4. Therefore, the agency has used the same relationship between CID x N/V reductions and fuel economy improvements for the analysis of the Chrysler petition that it used in the original rulemaking. However, because of the lower CID x N/V reductions now projected, the agency is reducing its projected fuel economy gain for Chrysler in this area by 0.4 mpg for 4X2's and is retaining its projection for 4X4's, for the reasons mentioned above.

The agency has also reduced its projection for fuel economy gains from CID x N/V reductions in the case of AM's 1X4 fleet (the bulk of that company's production). In the 1980-81 rulemaking, the agency projected that AM could improve its fuel economy by 0.7 mpg through

making reductions in the same range of relative magnitude as the other manufacturers, but AM now indicates that it plans no reductions. Although AM indicated in August 1977 that it planned to make CID x N V reductions of approximately the magnitude projected by the agency in the last rulemaking, it now indicates that such reductions should be made over the course of 3 to 4 years, to permit truck purchasers to become acclimated to the resulting decrease in vehicle acceleration capability. Even accepting AM's argument for the need of a phase-in period, making no CID x N V reductions between 1979 and 1981 could not be justified as the maximum feasible fuel economy improvement on their part. If AM makes only half the CID x N V reductions the agency projected (and AM previously planned) in the 1980-81 rulemaking, it could still comply with the existing 4X4 standard for 1981. AM in fact expects to be able to comply with that standard. AM's zero CID x N V reduction estimate is also well out of line with the estimates of the rest of the manufacturers. Therefore, the agency concludes that AM can make fuel economy improvements of at least 0.3 mpg through reducing average engine displacement or drive ratios for its 4X4 light trucks, enough to permit it to reach the current standard for 1981.

(b) *Engine efficiency improvements.* In previous rulemakings, the agency has, for analytical purposes, considered the related areas of efficiency improvements (i.e., mechanical improvements), optimization of engine calibrations (i.e., those controlling spark advance, exhaust gas recirculation rate, air-to-fuel ratio) and improvements in emission control systems as a single class of technological improvements. In the case of Chrysler in the last rulemaking proceeding, the agency projected that through a combination of these measures, any adverse impacts associated with more stringent emission standards for 1979 could be offset, and a net improvement of 2.4 percent for 4X2's and 1.4 percent for 4X4's could result. This conclusion was based upon earlier development testing of 1979 vehicles which showed a 3 percent emission standard related fuel economy penalty and Chrysler's own projection that it could achieve fuel economy gains of 5.4 and 4.4 percent for 4X2's and

4X4's respectively through a combination of engine efficiency improvements. Prior to the proposal of the 1981 standards in December 1977, Chrysler had provided even more optimistic projections of engine efficiency improvements, which the agency relied upon in proposing standards. See 43 FR 12001. Chrysler's most recent estimates indicate that it is continuing to pursue the same engine efficiency improvements identified in the last rulemaking proceeding, but is not obtaining the expected benefits because of unanticipated development problems with the various individual changes.

Much of Chrysler's currently projected engine improvement is categorized as undefined task, i.e., no specific means are identified for achieving the projected gain. The agency is adopting Chrysler's revised estimate of engine efficiency improvements, since it appears to reflect the maximum feasible gains in fuel economy.

The agency is also revising downward its estimates of feasible engine efficiency improvements for the other manufacturers. In the previous rulemaking, NHTSA projected that American Motors (AM) and Ford could offset the effect of more stringent emission standards through a combination of engine efficiency improvements, changes to emission control systems and calibration optimization, and that GM could offset the penalty and obtain a net improvement of 2 percent for both 4X2's and 4X4's. The projection for GM was based on their submission in the prior rulemaking, and was confirmed by GM on two separate occasions, most recently in December 1978. DN-29, p. 3. GM now claims that it was necessary to incorporate the above-mentioned improvements to achieve MY 1979 emissions certification and that a penalty still exists. The projection for AM was based upon their submission in the original rulemaking which stated that their estimate of the maximum engine efficiency improvements available would be 4 to 5.5 percent for their 4X4's. AM claims that they never intended to imply that the improvement could be obtained by 1981, only that it could eventually be achieved. In the case of Ford, that company's submission in the last rulemaking showed through "engine mapping" analyses that the emission penalty could be reduced to approximately 1 percent with optimal engine calibra-

tions (which may require electronic controls) and that certain additional engine efficiency improvements were possible. See 43 FR 12001. The agency found that electronic controls might not be feasible for light trucks by MY 1981 due to inadequate leadtime to implement the full development and production of the required software.

In its January 17, 1979, submission on the Chrysler petition, GM indicated that the agency should revise its position on the question of engine efficiency/optimization changes. DN-82, p. 2. GM subsequently clarified their position, indicating that they were revising their earlier statements that the emission standards penalty could be offset. DN-207. GM indicated that the change in position was due to the fact that their 1979 trucks suffered more than they had anticipated due to the change in emission standards. However, GM had already obtained data on their 1979 truck fleet at the time they confirmed their original position on this question in December 1978. The agency also notes that GM apparently had significant difficulty certifying their 1979 truck fleet for emission compliance, and "last-minute" changes to those trucks were required to permit certification. Ford stated that its engine calibrations are much closer to optimal than in previous years when emission standards changed, due to improvements in Ford's technical capability, but that approximately 1 percent fuel economy improvement is projected by 1981 due to calibration optimization. DN-91, p. 7.

Based on this information, the agency is projecting that GM can achieve a 2 percent fuel economy improvement (from its 1979 levels) due to calibration improvements, engine efficiency improvements, and improvements in emission control systems. This improvement is based on the fact that other manufacturers are projecting fuel economy improvements for engine improvement programs like the ones GM is engaging in (see Rulemaking Support Paper (RSP), section III, A), the difficulties GM had in certifying their trucks for emission purposes in 1979, and the historical trend for improved engine efficiency after the first year in which emission standards are made more stringent (see, e.g., Chrysler's comment on this point, DN-93, p. 5). In the case of Ford, the agency is adopt-

ing a 0.2 mpg improvement based on the above Ford reference and other confidential information. These results are 0.3 to 0.4 mpg lower than the projections in the 1980-81 rulemaking for both GM and Ford. The agency is also adopting Chrysler's reduced estimate of engine efficiency improvements, reducing their fuel economy improvement capability by 0.2 to 0.3 mpg. In the case of AM, the agency is eliminating the previously projected 5 percent improvement in fuel economy due to engine modifications (resulting in a 0.7 mpg decrease in average fuel economy). Although the agency is still of the view that a substantial potential for engine efficiency improvements exists for AM's engines, it is not clear that AM possesses the technical capability to implement these improvements by 1981. While the larger domestic manufacturers have either already implemented improvements in this category or plan to do so by 1981, AM's technical resources to make these improvements are quite small in comparison to GM, Ford, and even Chrysler. It should also be noted that giving AM the benefit of the doubt on this question has no effect on the level established for the 1981 4X4 standard, since AM projects being able to meet the current standard.

(c) *Weight reduction.* In the 1980-81 rulemaking, the agency projected that the light truck manufacturers could reduce the weights of their vehicles by amounts ranging from approximately 225 to 450 pounds. These conclusions were based upon the agency's own analysis of light-weight material substitution opportunities available to the vehicle manufacturers, responses to special orders issued to numerous suppliers of vehicle components and materials, and the manufacturers' own weight reduction plans.

Based on their responses to the notice on the Chrysler petition, it appears that the manufacturers are currently projecting slightly less weight reduction than did the agency in the 1980-81 rulemaking. Chrysler submitted information explaining why it had reduced its weight reduction projections from those provided in the earlier rulemaking. AM has effected weight reduction since the existing standards were established. This has improved the fuel economy of their 4X1 fleet as reflected in the MY 79 data. Beyond MY 79, the new EPA procedures, i.e.,

new test weights and new truckline definition, offset the weight reduction benefits expected between MY 79-81, according to AM. Consequently, AM expects no fuel economy benefit from weight reduction between 1979 and 1981 for its 4X4 fleet (all its commercially available trucks). Ford projects test weight reduction of under 150 pounds by 1981, despite the fact that it will be introducing a new pickup truck in 1980. GM provided information on its new 1981 model year pickup truck, but the agency is unable to determine the exact magnitude of the weight reduction achieved. GM did provide information on the fuel economy improvement the new truck could be expected to achieve, but that improvement was due to several factors in addition to lower weight.

The agency is projecting reduced benefits for weight reduction for Chrysler. In the case of Chrysler's 4X2 fleet, the largest part of the reduction is due to the change in the agency's regression equation. In particular, the agency has determined that, for purposes of predicting fuel economy for light trucks, revisions should be made to the regression equation used by the agency to determine the effect on fuel economy of changes in axle or gear ratios, engine displacement, and weight. The new regression equation is based on more extensive fuel economy data for light trucks, which became available for the first time in 1979. It predicts lesser benefits for a given degree of weight reduction than did the previously used equation, and greater benefits for axle ratio and/or engine displacement reductions. In addition, the new equation includes a factor for changes in aerodynamic/rolling resistance characteristics. The inclusion of this factor makes the new equation more consistent with current fuel economy test procedures, which base certain dynamometer settings on these characteristics, while the previous procedures relied solely on vehicle weight. In this analysis of the Chrysler petition, the new equation's reduced benefit for weight reduction has been used, accounting for a portion of the reduction in standard established in this notice. A further description of the new regression equation is contained in the agency's Rulemaking Support Paper on this proceeding. The final projected weight reduction benefit for 4X2's

agrees with the benefit projected by Chrysler when adjusted for changes in EPA test procedures.

In the case of 4X4's, the situation for Chrysler is essentially the same as in the 4X2 case. The projected weight reduction is slightly less than estimated by the agency in the 80-81 rulemaking; however, the benefits are reduced significantly (by 0.3 mpg) primarily because of changes in the agency's regression equation.

For both GM and Ford, the agency is projecting reduced fuel economy benefits (of about 0.3 mpg) from weight reduction for MY 1981, compared to the last rulemaking. While Ford and GM are reducing weight to levels approximating those projected by the agency in the original rulemaking, the use of the agency's new regression equation results in reduced fuel economy benefits. In addition, refinements to the weight simulation used by EPA for fuel economy testing are now expected to reduce previously projected improvements in *measured* fuel economy (naturally, on-the-road improvements are unaffected). Although these refinements make testing more accurate, their effect on measured fuel economy must be accounted for. The agency has also adopted AM's weight reduction plan, reducing their fuel economy improvement capability by 0.3 mpg.

(d) *Possible errors in NHTSA baseline or larger than anticipated effects of changes to emission standards and test procedures.* When the original 1980-81 standards were established, the agency lacked substantial fuel economy data for light trucks in the 6001-8500 pound GVWR range. The reason for the absence of these data was that those trucks were not yet tested for emissions by EPA in a manner which yields fuel economy data. Therefore, the agency used available data (primarily for trucks under 6000 pounds GVWR) and its regression equation to project fuel economy data for the entire 0-8500 pound GVWR fleet. This extrapolation permitted the agency to develop a starting point or "baseline" from which to project future fuel economy improvements for standard-setting purposes. A more complete description of this methodology is contained in Section II of the Rulemaking Support Paper for this petition.

The agency now has EPA-approved MY 1979 fuel economy data for light trucks in the 6001-8500 pound GVWR range. Using this data, the agency has attempted to determine the accuracy of the baseline used to set the existing standards. The first step in that process was to account for known changes that occurred between MY 1977 and MY 1979. Thus, the final NHTSA model year 1977 baseline fuel economy for each manufacturer (see RSP-S, Page III-19) must be reduced by 3 percent, the agency's estimate of the fuel economy penalty due to the stricter MY 1979 emission standards. Also, those baselines must then be increased by the known improvements which have been made since MY 1977. Finally, an adjustment must be made for differences between the 1977 and 1979 production mixes of the manufacturers. As a result, given no other changes, the adjusted final MY 1977 baseline should be identical to the MY 1979 baseline derived from the MY 1979 certification data. This is, however, not the case.

The 1977 and 1979 baselines, when adjusted as described above, are not consistent for a combination of reasons. One factor is that the trucks in the 6001-8500 pound GVWR range (for which fuel economy data were extrapolated from the under-6000 pound GVWR fleet) are inherently somewhat different from the lighter trucks and that the agency's extrapolation procedure therefore produced small errors. Another factor is that changes in the 1979 emissions standards and test procedures produced effects on individual manufacturers' fleets which were slightly different in magnitude than the agency-predicted effects. Another factor is random error, due to variation in results produced by the fuel economy test procedures and the relatively small number (statistically speaking) of actual tests conducted for 1979.

The agency has decided to use the 1979 certification data to construct a baseline to determine the fuel economy benefits that will be achieved through the manufacturers implementing the balance of their fuel economy improvements for MY 1981. This decision was based on the availability of actual fuel economy data instead of the partially estimated data used in the last rulemaking and on the shift in agency position on the question of whether the emissions

standards penalty would be completely offset by MY 1981. In the 1980-81 rulemaking, the agency used a baseline that did not include such a penalty and assumed that any emission standards-related penalty encountered subsequent to MY 1977 could be overcome by MY 1981. The agency now believes that the penalty will not be overcome totally by the 1981 model year. Therefore, the agency is using the new 1979 baseline which reflects that penalty.

The effect of switching to the 1979 baseline is to alter the baselines for the manufacturers. In the case of AM's 4X4 fleet, the use of the 1979 baseline increases the agency's projection of that company's ability to improve fuel economy by 0.2 mpg. In the case of Chrysler's 4X2 fleet and GM's 4X4 fleet, the effect on fuel economy of this decision is negligible. In all other cases, the decision to use the 1979 baseline for this analysis reduces the agency's fuel economy estimates. This effect is in the range of a 0.3 to 0.4 mpg decrease in fuel economy for Chrysler's 4X4 fleet and GM's 4X2 fleet, and approximately a full mpg decrease for both Ford's 4X2 and 4X4 fleet.

(c) *Aerodynamic and rolling resistance reductions.* The agency projected a 0.35 mpg fuel economy improvement for Chrysler's 4x4 trucks in 1981 due to improvements in aerodynamic characteristics and the use of radial tires. This improvement was based on Chrysler's own estimate submitted in the 1980-81 rulemaking. In its petition, Chrysler claims that this improvement is no longer attainable. Chrysler is of the view that the physical improvements can be made, but that the changes will not be reflected on current EPA test procedures. These improvements would show up on the EPA test only if Chrysler could use the optional "coast-down" procedure for determining dynamometer roadload horsepower. The coast-down procedure would be used by Chrysler if its 4X4 trucks could achieve aerodynamic and rolling resistance characteristics superior to the tabulated values established by EPA.

Chrysler indicates that many of the 4x4's sold will be equipped with off-road tires and that the EPA will require testing with such tires. Unless radial tires are used on the test, the improvements attributable to both aerodynamics and

reduced rolling resistance do not show up, according to Chrysler. However, the agency notes that Chrysler's largest competitors project being able to sell a high enough percentage of radial tires on their 4X4 light trucks to permit all 4X4 fuel economy test vehicles to employ radial tires. Recognizing that the use of radial tires on vehicles intended for off-road use may involve some compromises in vehicle utility, the agency nevertheless concludes that Chrysler's difficulties in promoting the sale of radial tires on 4X4 trucks should be no greater than their larger competitors and that the fuel economy benefits warrant such sale. Therefore, the agency projects that Chrysler can sell enough radial tires on its 4X4 trucks in 1981 to obtain the fuel economy benefit it and the agency projected in the 1980-81 rulemaking for aerodynamic and rolling resistance improvements.

(f) *Mix shifts.* The Center for Auto Safety has argued that Chrysler could use marketing strategies to shift its sales mix toward more efficient vehicles, and thereby improve its average fuel economy. DN-90, p. 7. The Center concludes that such a shift is consistent with the law and with the trend toward greater use of trucks for personal (i.e., non-commercial) reasons. The Automobile Owner's Action Council conducted a survey of Chrysler's truck advertising and concluded that the advertising was oriented toward the sale of powerful trucks and toward the sale of trucks as "toys" and as car substitutes. DN-106, p. 3 and attachment. The agency agrees that basing fuel economy standards on the maximum feasible use of marketing measures to promote the sale of fuel efficient vehicles is entirely consistent with the law, at least to the extent such shifts can be accomplished without causing major reductions in sales.

In the case of Chrysler's 4X2 trucks, the original 1981 standard-setting analysis was based on an apparent adverse mix shift from the 1976 sales mix used in the NPRM, to the projected 1979 mix supplied by Chrysler, in early 1978. (An adverse mix shift is one which reduces fuel economy.) The effect of this assumption was to reduce Chrysler's projected average fuel economy by 0.2 mpg. In its petition, Chrysler provided sales mix information which the agency

concludes reflects a further adverse mix shift between 1976 and 1979 having a fuel economy effect of about the same magnitude.

The agency is using Chrysler's latest mix projection for 1979 as the basis for the revised 1981 standard. This has the effect of reducing Chrysler's projected capability to increase fuel economy of 4X2's by 0.2 mpg.

The adverse mix shift impact is not necessarily like shifting from a large vehicle to a small vehicle. The impact here results in part because more Chrysler trucks are being sold with options like air conditioners, step bumpers, etc. These come in a package with a large engine, i.e., the 360 rather than the 318 or the 318 rather than the 225. Although Chrysler did eliminate the two largest engines it had available, the 400 and the 440, the net result of all these changes is a slight reduction in fuel economy. It is important to note that the relative proportion of Chrysler trucks sold with various accessories is still below the general level of accessory sales by the industry. Manufacturers' limits on sales of options such as step bumpers do not help fuel efficiency to a great extent because the resultant weight reductions and attendant fuel economy benefits are relatively small. The major option is air conditioning, and its control in a fleet where air conditioning is not as prevalent as it is in the fleets of other manufacturers might tend to drive customers to the competition. As noted in section (a) of this notice, the agency is very reluctant to place Chrysler in a position where it might be compelled to face major marketing risks in order to comply with the light truck fuel economy standards.

(g) *Revision to EPA's "car line" definition for light trucks.* Under EPA's fuel economy test procedures, test vehicles must be equipped with all optional equipment which is expected to appear on more than 33 percent of the trucks within that "car line." A car line was previously defined by EPA very broadly, with all vans constituting a single car line, for example. Thus, many vehicles equipped with options in production were not represented in fuel economy testing by test vehicles having those options. For the 1980 model year, EPA proposes

to revise the definition of "car line" to narrow that definition to better assure that vehicles are tested with the options they will have when sold. The proposal is supported by this agency. Chrysler argues that this change will result in reduced fuel economy caused by additional equipment being applied to more of its fleet, thereby reducing average fuel economy.

In the original 1980-81 rulemaking, the agency rejected the manufacturers' arguments claiming that this penalty was unavoidable and permanent, on the ground that the manufacturers could reallocate their offerings (i.e., sell more options on car lines which already exceed the 33 percent criterion and restrict options on the other car lines to less than 33 percent) to offset this penalty. In this rulemaking, this conclusion was universally disputed. Industry sales data indicate that a long-term trend toward higher sales of optional equipment is continuing, making option restriction quite difficult. Ford claimed to know of no method to restrict the option sales, and indicated that attempting to restrict those sales might even produce an adverse fuel economy impact. DN-91, p. 11. Ford provided a breakdown of its option sales by truck line, which showed that the vast majority of the newly created truck lines would be tested at higher weights than the previous truck lines. EPA conceded that due to the option equipment sales trends, option restriction was not a viable alternative for counteracting the effect of the new definition. DN-169, p. 2. The "penalty" appears to be as much a symptom of the trend toward higher sales of optional equipment as it is a result of changes in EPA's regulations, and is, therefore, permanent.<sup>2</sup> Thus, the agency is adopting the manufacturers' projected impacts of the 1980 test procedure change.

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<sup>2</sup> The EPA procedures change would not actually reduce fuel economy. It would correct the error caused by using data from vehicles tested without options to represent trucks that actually are sold with options. This causes a decrease in measured fuel economy, not on-the-road fuel economy, since the new procedure will apply data with options to more of the manufacturer's product line. Increasing the number of production vehicles equipped with options naturally decreases both on-the-road and measured fuel economy. Both effects must be considered in the agency's analysis.

(h) *Lubricants.* In the 1980-81 rulemaking, the Agency projected that a fuel economy improvement of 3 percent is achievable through the use of improved lubricants (i.e., friction modified, lower viscosity, synthetic base, or some combination of these methods). Two percent of this improvement was attributed to the use of advanced crankcase lubricants, such as versions of the recently marketed ARCO Graphite, Exxon Uniflo, Mobil, and other similar lubricants. The remaining 1 percent of the improvement was attributed to changes in rear axle lubricants. However, the use of the improved crankcase lubricants is not currently permitted by EPA in that agency's fuel economy testing. That agency has indicated that, before approval is granted for the use of these lubricants in fuel economy testing, it must have evidence indicating that consumers will actually purchase and use these oils in the replacement market. The type of evidence EPA seeks includes information showing that the selling price of the new oils will be competitive with regular lubricants, that the oils will have widespread availability in the marketplace, and that a generic definition of the oils is developed, so that the vehicle manufacturers can specify in owner's manuals that the new oils must be used.

The basis for the agency's conclusion as to the magnitude of the fuel economy benefit resulting from use of the improved crankcase lubricants is set forth in the preamble to the final rule in the 1980-81 rulemaking. 43 FR 12004-5. Data submitted by Exxon, ARCO, and Mobil Oil companies tended to support an improvement figure in the 4 to 5 percent range. More limited data from the vehicle manufacturers generally tended to support fuel economy improvements of 1 to 3 percent. Data from Mobil and GM tended to support a fuel economy improvement in the range of 1 percent for improved axle lubricants. Ford's data tended to support a fuel economy improvement in the range of 1 percent for manual transmission lubricants. All told, the agency concluded that an improvement of 2 percent for crankcase oils and 1 percent for axle/transmission lubricants is reasonable. However, to encourage further testing of these lubricants and to avoid the necessity of attempting to predict how EPA would



ultimately decide the approval question discussed in the previous paragraph, the 1981 standards were established at alternate levels, contingent on this approval.

Only limited additional information was submitted on the lubricants issue in this proceeding. Chrysler's recommendation that the lubricant improvement be deleted from NHTSA's analysis was based on Chrysler's conclusion that EPA would not approve the use of the lubricants (DN-10, P. 2) and tests of four cars using the Exxon oil, which showed fuel economy benefit from that oil declining with increasing vehicle mileage, DN-13, Att.L. All Chrysler's earlier data showed an improvement for the advanced oils of about 1 to 3 percent. Ford echoed the concern over the likelihood of EPA approval of the lubricants, and noted that its own test program showed only 0.5 percent improvement for these lubricants (DN-91, p. 8), down from the 12 percent projected in the 1980-81 rulemaking. GM has apparently not changed its plan to delay use of friction modified oils until after 1981, and continues to rely on lower oil viscosity to improve fuel economy. Problems were reported by GM in the areas of increased oil consumption and catalyst deterioration, due to the use of low viscosity lubricants, DN-82, p. 3.

The oil companies expressed a range of opinions on this issue, but no additional data. Texaco noted that the percent fuel economy improvement achievable with the new lubricants will vary depending on the friction characteristics of the oil currently used by the vehicle manufacturer, and asserted that their currently sold crankcase oil provides just as good fuel economy as at least one of the advanced lubricants, in on-the-road testing, DN 25. Chevron stated that the agency's projected 2 percent benefit for new crankcase oils is "on the high side," and projected a lesser benefit of 1 to 1.5 percent. Chevron also found a 1 percent fuel economy benefit for axle lubricants, but anticipated that these lubricants would not be widely available by 1981. Cities Service measured a 2.6 percent benefit for their advanced crankcase oil, but also noted that the benefit obtained depends on the base oil used. That company also indicated that it would begin marketing their advanced oil by

1980, and predicted that the necessary approval criteria for fuel economy testing could be met by the January 1, 1980, deadline. DN-149. Sun Oil Company projected an improvement of 2-3 percent for the crankcase oils (DN-150), while Shell's testing of other company's products led it to estimate a 0-2 percent improvement, DN-176. Shell predicted that the EPA approval process and all necessary oil company certification of the oils would not be completed prior to 1982. ARCO reaffirmed its prior statements to the agency, that "significant improvements" in fuel economy are possible with these oils, DN-151.

Against this background (including the more voluminous information submitted as part of the 1980-81 rulemaking), the agency has concluded that the estimated fuel economy benefit for improved lubricants should not be revised. The vast majority of data submitted by the oil companies support the 2 percent crankcase oil improvement or a greater improvement. Most of the data submitted by the manufacturers prior to the consideration of Chrysler's petition tended to support that figure. Limited additional support for the axle lubricant improvement projected was received from the oil companies, as well. Recent information submitted by the vehicle manufacturers (principally Chrysler and Ford) is relatively limited. The decision to maintain the original lubricant projection is also supported by a contract study performed for NHTSA by the Coordinating Research Council. See DN-187.

With respect to the question of whether all necessary criteria for EPA approval of the lubricants can be satisfied, NHTSA notes that progress is being made toward ultimate approval, and it is premature to speculate that the process cannot be completed in a timely manner. In the NPRM on the Chrysler petition, the agency stated that it was strongly inclined to wait until the January 1, 1980, deadline for EPA approval of these lubricants for fuel economy testing rather than concluding that use of the lubricants will not be approved and removing the lubricant projection from its standard setting analysis now. See 43 FR 58811. The manufacturers should base their fuel economy planning on the assumption that the standards for 1981 will be

in effect at the levels which reflect the inclusion of lubricants; those are the standards in effect with the publication of this rule, and those standards will remain in effect unless EPA's approval is not granted.

(i) *Other reductions.* Another problem which Chrysler argues has reduced its 4X2 fuel economy improvement capability relates to reduced automatic transmission parasitic losses. The use of a light duty, more efficient transmission to accomplish this improvement was not included in the agency's projections which formed the basis for the original 1981 standard, but was included in Chrysler's petition. Although Chrysler was apparently confident that this item could be applied by the 1981 model year at the time it filed its petition, it no longer is sure of success. On April 9, 1979, Chrysler, citing manufacturing and durability problems encountered in testing of the more efficient transmission, stated:

Presently, there is approximately a 50 percent probability that we will be successful in meeting the production date. If we are successful, we are confident the estimated improvement will be realized on the fleet.

DN-188, p. 2. In its December 6, 1978, submission Chrysler had projected a 1981 introduction of this technology, producing a 0.16 mpg fuel economy benefit.

The contradictory information places the agency in a difficult position to determine maximum feasible fuel economy improvements. Here, as elsewhere, Chrysler has reported development problems of one sort or another. However, the substantiation of those problems is often sketchy. Nevertheless, the current substantial uncertainty about the prospects for success leads the agency to be conservative. Therefore, the agency is not including this transmission improvement in projecting Chrysler's capability for MY 1981.

The agency has deleted its projection in the 1980-81 rulemaking that AM could employ a new, 4X4 transfer case in its fleet. This deletion lowers the agency's projection of AM's fuel economy improvement capability for 1981 by 0.2 mpg. NHTSA has deleted this item because of uncertainty as to whether the resulting gain from the use of a new transfer case would show up on fuel economy tests.

The agency's projection of Ford's fuel economy improvement capability has decreased by about .2 mpg for 4X2's and .5 mpg for 4X4's due to our changed assessment of Ford's ability to make improvements to automatic transmissions. All of the 4X2 reduction and about half of the 4X4 reduction is due to the elimination of the projected use of lock-up torque converters by 1981. The agency projected that the leadtime was adequate to accomplish this improvement by the 1981 model year, but Ford indicates that it plans to implement lockup torque converters after that date. The remainder of the 4X4 reduction is due to changes in Ford's planned usage of overdrive automatic transmissions in that portion of its fleet.

#### *Selecting the Standards*

On the basis of the above-described information from AM, Chrysler, Ford and GM, the agency has reassessed their fuel economy improvement potential for the 1981 model year as follows:

	<i>4x2</i>	<i>4x4</i>
AM -----	25.6	15.5
Chrysler -----	17.2	15.5
Ford -----	17.4 <sup>3</sup>	15.5
GM -----	17.2	15.8

The agency has not reassessed the capabilities of the other manufacturers (e.g., Nissan, Toyo Kogyo, Volkswagen, etc.) since only Toyota commented on the proposal. The absence of comments from most foreign manufacturers has been typical of all of the agency's other fuel economy rulemaking and results from those manufacturer's capabilities being well above the standard. The same is true in this rulemaking. See 43 FR 12012.

The values in the above table reflect the agency's judgment of the maximum levels of average fuel economy that the major domestic manufacturers can achieve without having to undertake measures involving substantial marketing risk. As indicated below, the agency concluded in this case that the additional difficulties involved with these measures would out-

<sup>3</sup> Ford's own projection is 17.6 mpg, with minimal benefits from lubricant.

weigh the slight additional fuel economy improvements they would make possible.

The agency also notes that there are often substantial uncertainties present in any rule-making like the present one in which the government must project future capabilities in an industry to develop and implement technological innovations. For example, the agency projections of technological improvements for MY 81 include undefined spark ignition engine improvements for Chrysler and GM, benefits from improved manual transmissions for GM although they project none, and greater benefits from the use of automatic overdrive transmissions than Ford projects. Improvements beyond those projected by the agency may be possible in such areas as automatic transmissions parasitic loss reduction, engine efficiency improvements, mix shifts, and engine displacement/axle ratio reductions. The agency is unable to quantify the uncertainty associated with these improvements. In this type of situation, agencies are required to compare the harm which is likely to result from erring either on the side of too stringent or too lenient standards. *International Harvester Co. v. Ruckelshaus*, 478 F.2d 615 (D.C. Cir 1973). The same type of balancing is required under the Act to determine at which point within the range of fuel economy improvement capabilities of the various manufacturers standards should be set. See Senate Report 94-516, at pages 154-5. The potential harm from setting too stringent 4X2 standards was found to be the liability of the manufacturers for civil penalties (as high as \$40 per truck produced in the case of Chrysler in the current rulemaking, i.e., achieving a CAFE of 17.2 mpg instead of 18.0) or the possibility of a decline in sales if a manufacturer attempts to restrict product availability while his competitors can sell a more complete line of vehicles. The amount of any civil penalty liability could be reduced by the Secretary of Transportation in a variety of circumstances, such as when the liability is due to certain circumstances outside the manufacturer's control or where payment of the full penalty would produce insolvency, bankruptcy, or a substantial lessening of competition within the truck market. In the case of the 4X4 standard, all the manufacturers are projected to be capable of

achieving compliance with the existing 15.5 mpg standard with relatively low risk (although the risk for Chrysler may well be greater than for GM and Ford), so these concerns do not apply to the same extent to 4X4 vehicles.

In the case of the 4X2 standard, the risks associated with maintaining the standard at 18 mpg are substantially greater and are faced by all the companies. The 0.8 mpg shortfalls faced by Chrysler and GM could be offset only through significant market restrictions, based on the agency's analysis. Given the magnitude of the risk involved, those companies might well decide to simply pay the resulting \$40 per truck civil penalties. In that case, maintaining the 18 mpg standard would not produce any additional petroleum conservation.

The benefits to the nation for Chrysler and the other manufacturers to meet the existing 4X2 standard of 18 mpg rather than a standard of 17.2 mpg are the approximately 710 million additional gallons of gasoline saved over the lifetime (128,000 miles) of the 1981 model year trucks. The agency considers that potential energy savings to be significant. However, the risks associated with maintaining the previously established standard has led the agency to decide to reduce the 4X2 standard to 17.2 mpg, the maximum achievable levels projected for GM and Chrysler. Since we project none of the major domestic 4X2 manufacturers to be able to meet the 18 mpg standard with only moderate risk, the agency cannot conclude that maintaining that standard would necessarily produce any additional energy savings. Should the manufacturers attempt to meet the 18 mpg standard through product restrictions, those actions would appear to involve substantial risk, due to the substantial fuel economy shortfalls involved. Because of the commercial uses for which many of these vehicles are applied, any marketing action which affected the trucks' utility in a substantially adverse manner could directly affect sales levels, and thereby industry profitability and employment.

A point made by the Department of Energy, and supported by EPA (DN-169) and the Center for Auto Safety (DN-90), is that standards should not be keyed to the "least capable" manufacturer, given the civil penalty/credit

mechanism in the law and Conference Report language which indicates that "industry-wide" considerations must be taken into account. See 43 FR 58841, December 18, 1978 (the proposed rule in this proceeding). GM, on the other hand, argues that fuel economy standards must be set at levels achievable by all. DN-82, Att. III. Chrysler argues that the issue of the "least capable manufacturer" is irrelevant, since the problems raised by that company are industry-wide, not just a problem facing one company. DN-93, p. 1. The agency has repeatedly stated in past rulemaking economy standards need not be set at the maximum achievable fuel economy level of the "least capable" manufacturer. In the case of the 4X2 standard, the agency's analysis demonstrated no single "least capable" manufacturer, with all the major domestic manufacturers falling within a very narrow fuel economy range and a majority of the domestic fleet (GM and Chrysler) being projected at the same level, 17.2 mpg. Thus, the "least capable" manufacturer issue is not implicated with respect to the 4X2 standard. Nor is the issue implicated with respect to the 4X4 standard, since that standard could not be set at a higher level at this time, due to the 18-month leadtime rule of section 502(f) of the Act.

Therefore, the agency is reducing the 1981 model year light truck fuel economy standard for 4X2's to 17.2 mpg, but is denying Chrysler's request to lower the 4X4 standard.

#### *Other comments and impacts of this decision*

The comments of the Department of Energy are of special significance in NHTSA's fuel economy rulemaking, given its statutory role. Under sections 502(b) and (i) of the Act, NHTSA must consult with DOE in carrying out fuel economy related responsibilities, and must provide DOE with advance notice and an opportunity to comment prior to issuing any proposed or final standards. In the case of proposed standards, NHTSA is required to discuss any "unaccommodated" comments of DOE in the Federal Register notice. Since NHTSA did not propose specific standards in this proceeding, but rather issued a "description of the subject and issues involved" within the meaning of 5 U.S.C. 533(b)(3), it is appropriate to address DOE's comments in this notice.

DOE is concerned that a decision to reduce the light truck fuel economy standards constitutes a very unfortunate lost energy conservation opportunity, the significance of which is magnified by the "large and *growing* demand for light duty trucks, increasing cost of imported oil and pressure that a revision of the 1981 standards could also lead to lower standards in later years." DN-95, p. 1. NHTSA believes that the energy loss resulting from this decision is outweighed by the risks faced by the vehicle manufacturers, consistent with the statutory requirements that standards be set at the maximum feasible level.

In particular, DOE is concerned that this decision may establish a precedent that standards will be reduced every time a manufacturer's technology development program encounters a problem, thereby eliminating "any effective forward looking standard setting activity by DOT." Supra, p. 2. Several of the agency's reduced fuel economy improvement projections have been revised to conform with manufacturers' plans, but only to reflect more recent information about capability. To the extent these development problems cannot be overcome by the model year in which the standards will apply, these problems limit the fuel economy improvement capability of the manufacturers, and, therefore, limit the levels at which standards can be set. These levels reflect the agency's current assessment of the maximum feasible fuel economy for each manufacturer, based on the leadtime from the issuance of the original 1981 standards. The agency does not intend to allow every minor development program problem encountered by the manufacturers to trigger a favorable consideration of a petition to reduce fuel economy standards, but that is not the case here as the problems are industry-wide.

DOE also argues that a revision to the fuel economy standards at this late date will penalize those manufacturers which have made plans and expended resources to meet the previous standards. The record of this proceeding indicates a similarity of capability of the various major domestic manufacturers. Judging by the comments of Ford and GM, those companies are facing the same type of problems that Chrysler confronts and will not be able to achieve fuel

economy levels significantly higher than Chrysler's. Indeed, Ford and GM support a reduction in the standards.

The Notice published by the agency concerning this petition (43 FR 58810) raised the question of the effect of a reassessment of the model year 1981 standards on the standard for limited product line light trucks. In the response to that notice, the only manufacturer subject to that standard, International Harvester, said that its 1979 projected corporate average fuel economy is 12.6 mpg or 1.1 mpg below the MY 1980 standard, DN-86. IH added that it expected "a considerable increase in fuel economy due to exhaust emission calibrations optimization in MY 1980." Since MY 1979 is the first year since the early 1970's that IH has had to comply with light duty truck emissions standards, the agency agrees with IH that substantial improvements are likely. IH has testified before Congress that it expects to meet the current 1980 and 1981 fuel economy standards. Therefore, the agency has not revised the limited product line standard.

Manufacturers have informed the agency that one of the methods they plan to use to improve the fuel economy of the currently regulated fleet of 0-8500 pounds GVWR is the rerating of vehicles above 8500 pounds GVWR. These actions do not contribute to fuel savings for the Nation. For this reason, the agency intends to monitor closely the manufacturers' production and marketing plans to determine the actual extent of this shifting beyond 8500 GVWR. These activities may lead to a determination by the agency to set fuel economy standards for such vehicles after model year 1981.

The environmental impacts of this decision are discussed in the Environmental Impact Statement prepared in conjunction with the establishment of the original 1981 standards. Copies of that document are available from the individual listed as the "information contact" at the beginning of this notice. The agency has concluded that a complete revised environmental impact statement need not be prepared for this proceeding, since the original document considered the impacts of a range of standards which encompasses both the original decision and the decision announced herein. The most sig-

nificant environmental impact associated with this decision is the additional petroleum consumption, with attendant increases in petroleum production, transportation, refining, and transfer related environmental impacts. If the existing model year 1981 standards are not changed, the agency projects a savings of 2.85 billion gallons of gasoline, compared to the 1980 standard. The standards established herein will save 2.11 billion gallons.

In consideration of the foregoing, 49 CFR Chapter V is amended by changing the title of Part 533 to "Light Truck Fuel Economy Standards" and by revising the 1981 model year standards set forth in the table in section 533.5(a) as follows:

533.5 Requirements

Model Year	* * *			
	2-wheel drive		4-wheel drive	
	light trucks		light trucks	
	Capture		Capture	
	Imports	Other	Imports	Other
1979	—	17.2	—	15.8
1980	16.0	16.0	14.0	14.0
1981	17.2*	17.2*	15.5*	15.5*

\* These standards are 0.5 mile per gallon less if, by January 1, 1980, the Environmental Protection Agency has not fully approved improved lubricants for use in fuel economy testing.

A Final Regulatory Analysis of the economic consequences of this decision has been prepared in accordance with section 10.f of the Department's Procedures for Improving Government Regulations, 44 FR 11034 *et seq.* This analysis considered a range of fuel economy standards between the existing standards and those requested by Chrysler. The establishment of 17.2 mpg as the fuel economy standards for 4X2 vehicles decreases gasoline savings by 0.7 billion gallons over the life of the 1981 fleet. Compared to the 1980 standards, the revised 1981 standards will save about 2 billion gallons of gasoline, at a cost of \$153 million in capital investment and \$49 per vehicle retail price increase. Consumers will achieve a net savings of \$255 per vehicle as a result of the 1981 standards (compared to the 1980 standards). Copies of this analysis are available from NHTSA's Office of Plans

and Programs, Room 5212 of the Nassif Building, Washington, D.C. 20590.

(Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); Sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2002); delegation of authority at 41 FR 25015, June 22, 1976 and 43 FR 8525, March 2, 1978)

Issued on June 20, 1979.

Joan Claybrook  
Administrator

**44 F.R. 36975**  
**June 25, 1979**

# **PREAMBLE TO AN AMENDMENT TO PART 533—LIGHT TRUCK AVERAGE FUEL ECONOMY STANDARDS**

## **Standards for 1982 Model Year**

**(Docket No. FE 78-01; Notice 2)**

**ACTION:** Final Rule.

**SUMMARY:** This notice establishes fuel economy standards for model year 1982 light trucks. The establishment of these standards is required by section 502(b) of the Motor Vehicle Information and Cost Savings Act. These standards are intended to result in the savings of 1.2 billion gallons of gasoline over the life of the 1982 light truck fleet, compared to the consumption which would have occurred if fuel economy remained at the levels of the 1981 standards.

**DATES:** These standards are applicable for the 1982 model year.

### **FOR FURTHER INFORMATION CONTACT:**

Mr. Francis J. Turpin, Office of Automotive Fuel Economy Standards (NRM-21), National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-472-6902)

**SUPPLEMENTARY INFORMATION:** In December 1975, following the Arab oil embargo of 1973, substantial increases in the price of imported petroleum, and a recognition of the nation's vulnerability to interruptions of supply and rapid increases in the price of foreign oil, the Congress passed the Energy Policy and Conservation Act. That law added a new Title V to the Motor Vehicle Information and Cost Savings Act ("the Act"), authorizing a number of federal initiatives to improve automotive fuel efficiency.

Section 502(b) of the Act requires the Secretary of Transportation to issue average fuel economy standards for light trucks beginning with the 1979 model year. That provision requires that standards

be set at the maximum feasible average fuel economy level, considering technological feasibility, economic practicability, the effects of other federal standards on fuel economy, and the need of the nation to conserve energy. That provision also requires that standards be established at least 18 months prior to the start of the model year to which they apply. To date, standards have been established through the 1981 model year. On December 31, 1979, in 44 FR 77199, the National Highway Traffic Safety Administration ("NHTSA" or "the agency"), which was delegated authority to administer the fuel economy program, proposed the issuance of light truck standards for model years 1982-85. These standards would apply to light trucks with gross vehicle weight ratings (GVWR) of up to 8500 pounds, curb weights of less than 6000 pounds, and frontal areas less than 45 square feet. This class of vehicles includes most standard pickup trucks, vans, and utility vehicles which are used for personal or light duty commercial applications.

This notice establishes standards for the 1982 model year only. Due to the imminence of the date specified in the law for establishment of the 1982 standards and to the complexity of the marketing and other issues involved in the later model years, standards for the 1983-85 model years will be established at a later date. The 1982 standards are 18 mpg for two-wheel drive light trucks and 16 mpg for four-wheel drive light trucks.

The basis for the proposed standards is set forth in the preamble to the December 31 notice of proposed rulemaking (NPRM), the agency's rulemaking support paper (RSP), and the agency's regulatory analysis, copies of which are available from the individual listed as the "information contact" at the beginning of this notice. These

standards are based upon information obtained in past rulemakings, the Department's own research activities, information submitted by the manufacturers in response to a July 1978 NHTSA questionnaire and a July 1979 special order, and other information. In general, the proposed 1982 standards are based primarily on the projected use of "add-on" technology such as radial tires, improved accessories, automatic transmissions with lock-up torque converters, and overdrive manual transmissions. Items requiring longer lead times, such as the introduction of compact pickup truck models and new engines were not included in the proposal for 1982 for most manufacturers, but were considered in three alternative analyses discussed in the agency's rulemaking support paper.

The fuel economy levels of 17.4 mpg for two-wheel drive (4×2) light trucks and 15.6 mpg for four-wheel drive (4×4) light trucks set forth in the NPRM were determined to be achievable by the "least capable manufacturer" with relatively minor difficulty, and were based on the agency's then current assessment of that manufacturer's capability. The NPRM noted that the final 1982 standards might be established at other higher or lower levels, depending on the comments received and the degree to which standards would be keyed to the least capable manufacturer. The proposed standards were generally consistent with levels of fuel economy which the manufacturers planned to meet, due to market demands and the anticipated establishment of fuel economy standards for that year. However, in most cases the proposed standards did not reflect such fuel economy improvement actions as reduction of average engine displacement or axle ratio below 1981 levels, or some feasible new model introductions.

The only comments received on the NPRM with respect to the 1982 standards came from the five domestic manufacturers of light trucks, the Center for Auto Safety, and Purolator Courier Corporation. With one exception, Chrysler Corporation, none of the manufacturers claimed to be unable to meet the proposed 1982 standards, and several apparently plan to exceed them by substantial margins. (As noted in greater detail later in this notice, the plans of the manufacturers and confidential information available to the agency place all of the manufacturers, except Chrysler, above the final standards too.) Since

filing its comments on the proposal, Chrysler's position has changed. In its March 1980 special order response, that company revised its projections upward and indicated that it now plans to exceed the proposed 4×2 standard and to closely approach the 4×4 proposal. In general, the manufacturers took exception to certain of the details of the agency's analysis for 1982, but did not claim that the agency had overstated substantially their achievable fuel economy levels for that year.

It should be noted that the levels of fuel economy projected in the proposal understated the actual fuel economy improvement capability for some companies due to limitations discussed above and the agency's policy of not including the fuel economy benefits from usage of diesel engines until the questions relating to the possible adverse health effects of diesel engine emissions are more fully resolved. The EPA has recently issued diesel particulate standards, and they will not preclude the use of diesel engines in light trucks for the 1982 model year. However, only two manufacturers plan to rely significantly on diesel engine usage for 1982, GM and IH, and the increased fuel economy levels which the agency would project based on those plans would not change the balancing process by which the agency arrives at final standards. Therefore, the agency has not included diesel engines in its 1982 fuel economy analysis, but may do so for the 1983-85 final rule, as mentioned in the NPRM. See 44 FR 77204.

The main issues raised in the comments on the 1982 standards involve the applicability of the standards, and in particular whether captive import light trucks may be included in average fuel economy calculations and whether the agency can and should establish a separate class of light trucks and a separate fuel economy standard to accommodate manufacturers such as Chrysler and IH, which claim to need special consideration. The latter issue will be discussed at the end of this notice, in conjunction with selecting the levels of the 1982 standards.

*A. Inclusion of captive imports.* Section 503(b)(1) of the Act provides that when a manufacturer both produces passenger automobiles in the United States and imports passenger automobiles, those two groups of vehicles are to be treated as if manufactured by separate manufacturers for fuel economy standards compliance purposes. The



purpose of this provision is to remove any incentive the domestic manufacturers might have to comply with fuel economy standards by merely importing more small foreign-produced automobiles, thereby decreasing employment in the U.S. industry. See Congressional Record, p. H5383 (daily edition, June 12, 1975). Although the law does not specify procedures for calculating light truck average fuel economy, the legislative history states that a similar computation (including "special rules for imports") should be established as was done in the statute for passenger automobiles. See House Report 94-340 (94th Cong., 1st Sess. (1975), 91). In establishing standards for 1980-81 model year light trucks, the agency used its classification authority under section 502(b) to require separate compliance of captive import and other light trucks after the 1979 model year. See 43 FR 11995, March 23, 1978.

Four of the domestic manufacturers commented on the issue of inclusion of captive import light trucks in model years after 1981. GM argued that the law *compels* NHTSA to require separate compliance of domestic and captive import light trucks. This position is based upon the language in the House Report relating to a "similar computation" for light truck average fuel economy as was done statutorily for passenger automobiles. GM argues that this position is further supported by Congress' making the definition of the term "domestically manufactured" in section 503(b)(2)(E) apply to both passenger automobiles and light trucks. That term is the key definition for purposes of requiring separate compliance of imported and domestic vehicles, and could have been limited in application to passenger automobiles had Congress so intended. Ford also favored requiring separate compliance for import and domestic light trucks, but argued that if imports are permitted to be included in the average fuel economy calculation for some manufacturers, they must be includable for all. International Harvester favored permitting the inclusion of captive imports, but only if a higher fuel economy standard were set for companies which did so. Chrysler favored permitting the inclusion of up to 80,000 captive import light trucks in a manufacturer's average fuel economy calculation, and argued that the agency has authority to permit this.

One argument raised by Chrysler to support the inclusion of captive imports is that this step would raise the average fuel economy of its domestic fleet relative to the levels achieved by Ford's and GM's domestic fleets. (Inclusion of the captive imports would also increase the agency's assessment of Chrysler's ability to improve its domestic average fuel economy and might lead to the setting of higher standards than would be set were the captive imports excluded. Chrysler would still have the lowest projected fuel economy of all companies, however.) However, the agency remains of the view that the separate compliance requirement for domestic and captive import light trucks has a countervailing positive impact, in encouraging the domestic manufacturers to produce small trucks in the U.S. and thereby increase U.S. industry employment. Once this investment is made, the companies will have a stronger incentive to promote the sale of these more fuel efficient vehicles, thereby reducing gasoline consumption. Domestic production of small trucks will also improve the U.S. trade balance by capturing sales which would otherwise go to the importers.

Chrysler also argued that permitting it to include captive imports in its CAFE would enable it to "test the market" for smaller, more fuel efficient types of vehicles. The agency's original decision to require separate compliance of captive import and other light trucks does not preclude Chrysler or other manufacturers from continuing to test the small truck market with imports, to determine if demand for such vehicles is adequate to support minimum feasible domestic production volumes. However, the agency doubts that additional evidence is needed to convince a manufacturer that a market exists for these vehicles. In fact, Chrysler, in an October 17, 1979, submission to the Treasury Department relating to its loan guarantee, projects that small pickup trucks will account for 23 percent of the light truck market in the early 1980's. Sales of compact Japanese pickup trucks increased 39 percent from 1978 to 1979, to 465,000 units, despite a general decline of over 15 percent in total light truck sales. The compact pickup trucks were the only segment of the truck market to register a sales increase. Given the nearly universally accepted predictions of future gas price increases and possible shortages, the market for compact, fuel efficient light trucks

seems assured. The other domestic light truck manufacturers apparently agree with the agency's conclusion that the market is sufficient to support the sale of these trucks, given their plans to begin production in the next few model years.

The agency remains convinced that the separate treatment of captive import and domestic light trucks is the position most consistent with the legislative mandate to develop similar average fuel economy calculation procedures for light trucks as for passenger automobiles. Therefore, this final rule makes no change in the current requirement for separation of foreign and domestic light truck fleets.

*B. Technical issues.* Several rather minor objections were raised with respect to the agency's technical analysis of 1982 fuel economy improvement capability. All issues are discussed in greater detail in the agency's rulemaking support paper, copies of which are available from the individual listed as the "information contact" at the beginning of this notice.

The first issue involves the baseline used to project 1982 fuel economy levels. For the NPRM, the agency used as the baseline its prior analysis of achievable 1981 fuel economy levels from the rulemaking proceeding to reconsider that year's standards (44 FR 36975, June 25, 1979). That analysis was in turn based upon 1979 sales mix and fuel economy test data. Only IH commented on the question of whether 1980 mix and test data should be used as a baseline to the extent that information becomes available. IH supported the use of 1980 test data, but cautioned that the 1980 sales data might be unrepresentative due to market fluctuations. A shift in the light truck mix apparently occurred between early 1979 and the present time, with lighter trucks and smaller engines accounting for a larger portion of total sales. Although the agency is not revising its baseline estimates of average fuel economy, the standards established herein do reflect the changes in the truck market which occurred after the start of the 1979 model year, as discussed below.

Both AM and IH argued that the 1981 *standards* should be the baseline for projecting 1982 fuel economy levels, and that the only additional technology which should be considered by the agency is that which could be added for the 1982 model year. This approach would ignore any technology which was used by manufacturers to

voluntarily *exceed* the 1981 standards, and would therefore inaccurately measure 1982 maximum feasible fuel economy levels. For the NPRM, the agency did include improvements by two manufacturers (Ford and GM) which raised their capabilities beyond the 1981 standards. Thus, the agency has rejected this suggestion, due to its inconsistency with the legal requirements that standards be established at maximum feasible levels.

The agency also requested comment on its current policy of not including in standard-setting analyses the fuel economy benefits from diesel engines, pending resolution of various diesel-emission-related questions by EPA. All the manufacturers (but for AM, which did not address the issue) supported the continuation of this policy, which has the potential effect of reducing the level of standards which are set. Ford also suggested that the policy be extended to its planned PROCO engine. With respect to the diesel issue, the agency is continuing its current policy for the reasons discussed above. The PROCO issue has no direct bearing on the 1982 standards in any case, since the PROCO engine would not be available until some later model year. Ford's comment will be addressed in the 1983-85 final rule.

IH also objected to the agency's methodology of assuming that if diesels were not available to that company, consumers would purchase the most efficient alternative gasoline engine available, a four-cylinder engine in IH's case. In fact, the agency substituted a combination of 4- and 8-cylinder engines for the diesels, not solely the 4-cylinder engines. However, the agency is of the view that the 4-cylinder engine is the closest substitute to the diesel in terms of acceleration performance and fuel economy, as discussed in the rulemaking support paper.

Several objections were raised with respect to the agency's projections of various transmission improvements. However, none of these objections were accompanied by test data or supporting analysis. Therefore, the agency has not revised its analysis with respect to potential transmission usage. Additional discussion on transmission improvements is contained in the agency's rulemaking support paper.

Ford objected to the fuel economy benefit from improved accessories projected by the agency.

However, since Ford's statement did not indicate that such improvements were not feasible or provide any supporting data, the agency has not revised its projection used in the NPRM. Chrysler also differed with the agency's projection (and its own past estimates) of accessory improvements. No substantiating data for this change of position was provided, and the agency sees no reason why at least a portion of the originally projected improvement cannot be achieved by Chrysler. Although Chrysler pointed out that tests of one proposed technique provided no benefit, the agency considers it likely that other techniques may still provide a portion of the benefit.

Chrysler also objected to the agency's estimate and reduced its own previous estimate of the fuel economy benefit it could obtain from aerodynamic improvements for 4x2 light trucks. However, Chrysler provided no data or analysis in support of its claim, beyond stating that only one previously proposed improvement had proven acceptable within the constraints of cost, engineering and styling. Also, Chrysler's current estimate of the relationship between reductions in aerodynamic drag and fuel economy improvements is much lower than both the agency's estimates and those of the other manufacturers. Accordingly, the agency cannot accept Chrysler's unsupported assertion in this area.

Chrysler has also changed its position on feasible weight reduction for 1982. The agency had previously projected a very small improvement in this area (a reduction from projections made in the original 1981 standard-setting proceeding). Since Chrysler provided no basis to conclude that NHTSA's projected weight reduction is not feasible, the agency is retaining its original estimate.

Ford, GM, and Chrysler all objected to the agency's projection of a 1 percent fuel economy benefit from improved axle and manual transmission lubricants for 1982. GM and Ford projected lower benefits than did the agency, and GM and Chrysler indicated that additional time would be needed to complete the necessary durability testing. The agency recognizes that the precise level of benefits has not been finally established, but believes that its projections are substantially correct. The agency recognizes too that durability is a matter that the manufacturers must address. However, except for Chrysler, the

manufacturers' arguments were not supported by any new information and are the same arguments considered and rejected by the agency in the past proceedings on 1980-81 light truck standards and the reconsideration of the 1981 standards. GM's and Chrysler's comments discuss lower viscosity rear axle lubricants only and do not discuss the benefits from the use of synthetic base or friction modified axle lubricants. Ford has tested the friction modified lubricants and apparently has not encountered any durability problems. In the absence of data or information in support of these arguments, the agency is retaining its 1 percent axle lubricant projection, but not including this benefit for Chrysler until 1983.

The manufacturers also objected to the agency's projection of a 3 percent fuel economy improvement for 1982 from the use of electronic engine control systems. Some manufacturers apparently assumed that the agency's projections were limited to systems for fully interactive electronic control of spark advance, air-to-fuel ratio, and exhaust gas recirculation rate. This was not the case, since, as was pointed out in the Support Paper for the NPRM, the agency was projecting the use of a variety of electronic controls which differ in sophistication. The primary basis for this projection was that electronic controls (not necessarily fully-interactive electronic controls) would be used on 1981 model year passenger cars. In the 1980-81 proposal on light trucks (42 FR 63184; December 15, 1977), the agency projected that these controls could be applied to 1981 model year light trucks. The agency did not assume the use of controls in setting the final 1981 standards due to possible lead time problems in fully developing and reproducing the necessary software. Now some manufacturers are arguing that lead time does not exist to apply electronic controls to the 1982 light truck fleet, and even if it were done, no fuel economy benefit would result. Again, those arguments are based primarily on 3-way catalyst systems.

The agency rejects the lead time argument put forth by GM because the agency did not restrict its MY 1982 projections to 3-way catalyst systems and there has been sufficient lead time for large manufacturers such as GM and Ford to develop electronic control systems. Indeed, GM is intending to use a Knock Limiter System. Further,

both Chrysler and Ford will be using some form of electronic controls on certain applications in MY 1982. Several sources in the Support Paper for the NPRM substantiate the agency's position of average fuel economy benefits of from 3 to 5 percent for electronic controls in various forms as does later information submitted by one manufacturer. Although some data submitted by the manufacturers showed no fuel economy improvement from specific electronic subsystems in particular applications, the agency is retaining its original estimate of 3 percent as a reasonable estimate of the average improvement in fuel economy.

Ford and Chrysler objected to the agency's estimate of fuel economy benefits available from reducing engine displacement or total drive ratio ( $CID \times N/V$ ). Ford objected to the  $CID \times N/V$  reductions projected in one alternative case in the rulemaking support paper, but that was not the reduction upon which the 1982 proposal was based. The agency believes that Ford can meet the standards established herein without making  $CID \times N/V$  reductions beyond those planned. Chrysler, however, projects that for 1981 it will sell engines with *larger* average displacement, and consequently poorer fuel economy, than in 1980. The mix gets even worse for 1982. The agency cannot accept Chrysler's 1982 projection for purposes of setting standards. Against a background of current rapid gas price increases, uncertainties over Mideast oil supplies, and record sales of small imported automobiles, neither the agency nor Chrysler's domestic competitors views the market as being consistent with Chrysler's forecasts. Even if Chrysler were correct in its forecast, that company provided no information bearing on its ability to use marketing measures to promote the sale of smaller engines. However, the agency is accepting Chrysler's projected shift for 1980-81, which is based on certain sales dislocations being carried over from 1979. Overall, the agency is retaining its original estimate of  $CID \times N/V$  reductions for Chrysler.

In the NPRM, the agency discussed a base case for making fuel economy improvements in 1982-85. It also set forth three alternative cases for achieving higher fuel economy levels, by introducing additional compact truck models,

major performance reductions, and eliminating many of the higher payload trucks. With respect to the "new model" case, the Center for Auto Safety objected to the fuel economy values projected by the agency for compact pickup truck and van models. Specifically, the Center argues that the new domestic models projected by the agency would still be larger than and have poorer fuel economy than imported light trucks, and would be unable to successfully compete with the imports in these times of increased demand for high fuel efficiency. According to the Center, the result of producing such vehicles would be further loss of sales to the imports, increased unemployment in the domestic industry, and a waste of capital due to the need to downsize these trucks again. The agency is concerned about the issue of new model attributes, but the issue raised relates to the 1983-85 standards because of the inadequate lead time to change 1982 designs. The agency will consider this question more fully for the final rule on 1983-85 standards.

*C. Economic practicability.* None of the manufacturers raised any specific objections with respect to the agency's analysis of the costs associated with compliance with the 1982 standards. Since the agency's projections of 1982 fuel economy improvements are no more stringent than the actions planned by the manufacturers to meet current market demand for greater fuel efficiency, the additional costs imposed by the 1982 standards are speculative. For that reason, the agency has continued to determine the costs and benefits of improving fuel economy to the levels required by our standards, regardless of the motivation for making those improvements.

IH raised two general economic issues. First, it requested that the agency conduct cash flow analyses for AM and IH as had been done for the larger domestic manufacturers. The 1982 model year capital investment required of these two companies, which rely extensively on suppliers for major components, is quite small. This makes cash flow a much less critical consideration for those companies than for the "Big Three." Further, IH's light truck production is a very small portion of that company's business. Thus, IH's light truck expenditures have a relatively small impact on its

cash flow. Second, IH agreed that the agency consider the costs associated with fuel economy standards compliance, but which do not involve product changes. Apparently, IH is referring to the costs associated with commenting on proposed standards, responding to questionnaires and special orders for NHTSA, and submitting reports to the government. IH states that these costs are insignificant for the larger manufacturers, but important for companies having a much smaller share of the market, like IH. However, IH provided no cost information to support their argument.

D. *Effects of other federal standards.* Two manufacturers addressed the issue of the effect of 1982 safety standard amendments on fuel economy. GM argued that the changes to Standard 204 (relating to steering column rearward displacement) would require structural reinforcement to its vans, adding 40 pounds additional weight. IH, on the other hand, estimated no adverse impact for its light truck fleet due to changes in safety requirements. The agency estimates that 40 pounds added to GM vans, if actually required, would have a negligibly small impact on measured fuel economy and no effect on its compliance with the 1982 standards.

E. *Need of the nation to conserve energy.*

None of the manufacturers took exception to the agency's discussion of the need of the nation to conserve energy, as set forth in the NPRM, rulemaking support paper, and preliminary regulatory analysis. Events continue to bear out the conclusion expressed by the agency in each standard-setting proceeding to date, that the need of the nation to conserve energy is so great as to require the establishment of the most stringent feasible fuel economy standards.

F. *Setting the 1982 standards.* Based on comments received on the agency's NPRM, no significant revisions are required to the detailed technology usage projections which formed the basis for the proposed standards. However, due to rapid shifts in the light truck market and to corresponding changes in manufacturers' product plans, the estimates made by the agency in December no longer appear valid. For example, Chrysler recently submitted a response to an agency special order which projected 1982 fuel economy levels of 17.7 mpg for 4 × 2's and 15.3 mpg for 4 × 4's 0.5 to 0.6 mpg above the levels it

told NHTSA were its maximum feasible levels less than two months ago. Based on the plans of the various manufacturers to substantially change current trucks and on other information available to the agency, the fuel economy levels achievable with no more than moderate risk for the 1982 model year are as follows:

	4 × 2	4 × 4
American Motors .....	—	16-17
Chrysler .....	17.7	15.3
Ford .....	18-19	16-17
General Motors .....	18-19	16-17
International Harvester ...	—	17.1

The precise planned fuel economy levels of some of the manufacturers have been claimed to be confidential by some of the companies.

The reason for these higher levels is that some manufacturers plan (in response to the rapidly shifting market) to take certain actions to improve fuel economy beyond those actions projected by the agency for the proposed standards. Also, some of these numbers include the benefits of diesel engines, which the agency did not include in its analysis. These additional actions either became more firmly established after the issuance of the NPRM, or were discussed in manufacturers' special order responses but were not fully integrated into the agency's proposal due to the short period of time between the receipt of special order responses and issuance of the NPRM.

Because of the rapid changes in the truck market, with fuel efficiency playing a much greater role in consumers' purchasing decisions, it appears that the manufacturers' fuel economy improvement plans for 1982 are a more accurate indicator of the "maximum feasible average fuel economy" for that year than are the agency's projections in the NPRM. Given the limited lead time remaining until the beginning of the 1982 model year and the substantial economic uncertainties facing the manufacturers and the national economy, the agency is relying primarily on the manufacturers' planned fuel economy levels in setting final 1982 standards. The final standards are also quite consistent with the fuel economy levels projected in the alternative cases in the agency's rulemaking support paper.

The Act's legislative history provides guidance on the establishment of fuel economy standards in a situation like this one, in which one manufacturer has lower projected fuel economy than the rest of

the industry. The Conference Report on the Act provides guidance in this regard as follows:

The conference substitute lists a number of factors the Secretary shall consider in determining maximum feasible average fuel economy . . . Such determination should . . . take industrywide considerations into account. For example, a determination of maximum feasible average fuel economy should not be keyed to the single manufacturer which might have the most difficulty achieving a given level of average fuel economy. Rather, the Secretary must weigh the benefits to the nation of a higher average fuel economy standard against the difficulties of individual automobile manufacturers. Such difficulties, however, should be given appropriate weight in setting the standard in light of the small number of domestic automobile manufacturers that currently exist, and the possible implications for the national economy and for reduced competition association (sic) with a severe strain on any manufacturer. However, it should also be noted that provision has been made for granting relief from penalties under Section 508(b) in situations where competition will suffer significantly if penalties are imposed.

Senate Report 94-340, 94th Cong., 1st Sess. (1975), at 154-5. Thus, the Secretary is required to balance the benefits to the nation of setting fuel economy standards at some level above that projected to be achievable with minimal risk by the "least capable" manufacturer against the resulting harm to that manufacturer and to industry competition.

The main benefit from setting higher fuel economy standards is the additional petroleum savings which would result, or at least the greater certainty that these savings will be realized. This benefit is limited by feasibility constraints, since some levels of fuel economy either cannot be achieved or, more likely, could be achieved only at a risk perceived by the manufacturers to be so great that they would elect to pay civil penalties for failing to meet the standards rather than comply. This possibility of setting fuel economy standards which do not produce the anticipated savings is remote (but for Chrysler) if standards are set at levels at least up to 18 mpg for 4 × 2's and 16 mpg for 4 × 4's. Over the fuel economy ranges which the manufacturers are able to achieve for 1982, each 0.1 mpg of additional average fuel economy for the industry (including both classes of trucks) produces additional gas savings of approximately 130 million gallons over the life of the affected vehicles.

Setting standards at levels which can more readily be achieved by the least capable manufacturer could result in the loss of gasoline savings which a higher standard would produce. In other words, standards set at a level which Chrysler can readily achieve would be below the maximum level which the other manufacturers can meet, and the other manufacturers could choose to just meet the lower standards instead of achieving the higher fuel economy levels they are capable of meeting. It has been argued by some manufacturers that market forces would not permit any manufacturer to produce vehicles of less than maximum fuel economy. However, the concept of "maximum fuel economy" is one upon which the agency and some of the manufacturers would disagree. There is no certainty that the manufacturers would maintain their planned 1982 fuel economy improvements if the fuel economy standards provided that latitude. In the unlikely event that setting 1982 standards well below GM's and Ford's capability (and below that of AM and IH in the case of 4 × 4's) did not result in lower energy conservation in 1982, it could have that effect in a later year. The setting of such standards would enable those companies to earn large 1982 credits and thus possibly reduce the incentive for additional fuel economy improvements in a later year. The fact that Ford, in its comments on the NPRM, stated that its 1982 planned fuel economy levels had been reduced from levels reported to the agency in September 1979 is evidence that current plans are not absolutely fixed, and that lower fuel economy levels are a definite possibility.

The agency is also directed to consider the possible competitive harm which would occur if standards were set at a level above which a manufacturer could meet with low risk. This harm could result from either the payment of civil penalties (and any resulting adverse publicity) or the taking of drastic actions to comply with the standards. With respect to the payment of civil penalties, the Secretary may waive penalties if the Federal Trade Commission certified that the payment of such penalties would produce a "substantial lessening of competition." Given Chrysler's situation as one of the three major domestic light truck producers and its current financial troubles, it is likely that such a finding would be made and potential penalties waived. More to the point, Chrysler will earn enough credits in 1981 to eliminate any civil penalties for the majority of its trucks, the 4 × 2's. Credits carried over for its 4 × 4 fleet would reduce the maximum civil penalty

liability to about 2 million dollars. Given the public's awareness of Chrysler's problems, the small magnitude of the potential penalties, and the possibility that Chrysler might meet the standards, the agency discounts the adverse publicity factor.

The remaining risk to be considered is the potential harm resulting from a manufacturer taking extraordinary actions to meet the standard and either producing vehicles which are not accepted in the market or incurring expenses which it cannot meet. Given the magnitude of the potential civil penalty liability for Chrysler of \$35 per  $4 \times 4$  truck and the possibility that any penalty would be waived, it is inconceivable that company would take any actions to comply with the standards which might have serious adverse economic consequences for it.

Further, the possibility remains that Chrysler may be able to achieve 1982 average fuel economy levels of 18 mpg for  $4 \times 2$ 's and 16 mpg for  $4 \times 4$ 's. If Chrysler took such actions as further increasing the efficiency of its engines, reducing its average engine displacement by changing the mix of the vehicles sold, or instituting additional lightweight material substitutions, it may be able to comply with these standards.

The agency concludes that the energy savings benefits associated with setting standards at levels of 18 mpg for  $4 \times 2$ 's and 16 mpg for  $4 \times 4$ 's outweigh the rather speculative harm to Chrysler of such standards. Therefore, after balancing the factors required by the law, the agency is establishing final standards of 18 mpg for  $4 \times 2$ 's and 16 mpg for  $4 \times 4$ 's.

Commenters on the NPRM raised two issues which directly relate to the balancing process and selection of final standards. First, IH and Chrysler both argued that standards *should* be set at levels, readily achievable by the least capable manufacturer, and the Center for Auto Safety opposed such a process. IH argued that the adverse publicity associated with violating the standards would be very damaging to the "least capable manufacturer." The standards established herein can be met by IH, based on that company's current product plan, as described in its response to the agency's July 1979 special order. In Chrysler's case, the public is already aware of that company's current financial difficulties and should not draw additional adverse conclusions based on its possible failure to comply, particularly if civil penalties are

offset by credits or waived. In any case, the potential loss in fuel savings resulting from setting standards at a level which Chrysler readily could meet outweighs any of the speculative effects on that company.

The second argument, which was also supported by IH and Chrysler but opposed by GM, Ford, and the Center for Auto Safety, involves the use of the agency's authority under section 502(h) of the Act to set separate class fuel economy standards for companies with particular problems. IH argued that it needs such special treatment. However, based on its own plan and the agency's projections, it can comply with the standards established herein. With respect to the Chrysler situation, both GM and Ford argue that the agency lacks the authority to establish such a classification. Both manufacturers argue that the Act requires that standards apply equally to all manufacturers, and that the agency's authority to set standards for different classes applies to classes of *vehicles*, not of manufacturers. The Center for Auto Safety argues that the mechanism in the law for payment of moderate civil penalties for noncompliance and for reduction or elimination of those penalties in cases of need should be the sole method for dealing with the problems of the least capable manufacturer. Ford also argues that separate standards for different companies competing in the same market segment provides a competitive advantage to the company subject to the less stringent standard.

The agency has in the past used its classification authority to promote maximum fuel savings while still not placing undue burdens on particular manufacturers. For example, the separate  $4 \times 4$  standard was established to account for American Motors, whose fleet is predominantly the less fuel efficient four wheel drive vehicles. The "limited product line" standard was established to provide a two year transition period for IH to gain experience with complying with more stringent emission standards, which were applied to that company's light trucks for the first time in 1979.

With respect to IH, the two year period expires in 1981, and all indications are that IH has been able to improve its ability to meet more stringent emission standards without loss of fuel economy. The fuel economy of IH's  $4 \times 4$  fleet for 1982 is on a par with that of the other manufacturers'  $4 \times 4$  fleets, so the agency is not granting IH's request to

extend the applicability of that company's special class. IH argued that a separate class is needed to allow for the possibility that it might offer  $4 \times 2$  versions of its Scout vehicle in 1982. In recent years, the sales of these  $4 \times 2$  derivatives of the standard  $4 \times 4$  Scout have been at very low levels, dropping to under 300 units in 1979. In a September 13, 1979, letter to the agency, IH indicated that the Scout is available "only in four-wheel drive." In any case, given the low volumes involved, the availability of diesel engines to raise  $4 \times 2$  fuel economy, and the existence of carry-over credits if  $4 \times 2$  Scouts continue to be sold, the agency sees no need to perpetuate the special class for IH. However, since IH and AM will still have fleets which are at least predominantly four wheel drive, the agency deems it necessary to extend the separate class for that type of vehicle. See 42 FR 63192-3, December 19, 1977.

Without deciding the question of whether the agency has the authority to set a separate standard for Chrysler but recognizing that serious questions exist in that regard, the agency deems it appropriate to employ other statutory mechanisms in dealing with that company's problems. Chrysler competes in the same market segments as GM and Ford, and the various truck models offered by those three companies are remarkably similar. There is no inherent technical reason why Chrysler's light trucks cannot achieve the same levels of fuel economy as the other companies. The agency does not seek to minimize the magnitude of the *economic* difficulties which confront Chrysler. However, the agency is concerned that the establishment of differential fuel economy standards for fleets of vehicles which are nearly identical on a model-for-model basis could have an anticompetitive effect. Congress considered the conflict between standards which require maximum fuel economy improvements and the inevitable differences in capabilities of the affected manufacturers, and developed the enforcement mechanism in section 508 of the Act (involving modest civil penalties for noncompliance, offsetting monetary credits, and waivers of penalties in certain instances) to deal with the situation. Therefore, the agency is not establishing a separate class and fuel economy standard for Chrysler.

*G. Miscellaneous comments.* AM raised two procedural issues in regard to the 1982 standards. First, it argued that the agency failed to comply with the requirement in section 502 (b) of the Act that standards be issued 18 months prior to the start of the model year to which they apply. In AM's case, its 1982 production period will begin in July 1981, and 18 months prior to that date would be January 1980. As the agency noted in response to the same comment made by AM with respect to the 1980 standard, there is no single start of a model year for all companies in the industry (43 FR 11995; March 23, 1978). Production begins as early as July (or even earlier in some cases such as with the GM X-body cars) and as late as December for some foreign manufacturers. However, the agency has endeavored to provide approximately 18 months leadtime for the industry as a whole. Even for domestic companies with early-starting model years, these standards are established 18 months prior to the introduction for sale of the 1982 models. Further, lead time should not be a problem for AM with respect to the 1982 standard, since its current product plan would lead it to exceed the standards promulgated herein.

AM also objected to the brief 30 day comment period provided with respect to the 1982 standard. This short comment period was necessitated by the statutory deadline for issuance of that standard and by delays in issuing the NPRM resulting from requests from the industry to reduce the 1981 standards. Although the agency seeks to provide more than 30 days to comment on proposed rules, NHTSA views the 30 day period as reasonable in this case, due to the relatively narrow issues involved. More time has been provided to comment on the 1983-85 standards, where the issues involved are much more complex.

Purolator Courier Corporation argued for a more gradual increase in stringency in fuel economy standards to accommodate fleet truck operators like itself. It argued that much of the technology needed to comply with fuel economy standards is not fully proven, and that downsizing of light trucks would make those trucks less useful to commercial purchasers. Purolator also requested that a public hearing be held on the standards. The agency recognizes that changes to light trucks might result in some inconvenience to commercial users, e.g., from the need to train mechanics to repair new types of technology.



However, the Act specifies that the agency must establish fuel economy standards at the maximum feasible level for each model year, necessarily producing changes in the truck fleet. The technology projected by the agency, particularly for the 1982 model year, is well proven and in most cases already in use on some vehicles. Further, the agency's standards do not necessitate the elimination of standard-size trucks with V-8 engines, which Puroator claims to need. The agency does not see a need for a public hearing on these fuel economy standards, since the opportunity to submit written information is an effective means of addressing the primarily technical issues in a detailed fashion.

#### H. Economic and energy impacts of the 1982 standards.

The agency considered the economic impacts of the 1982 standards, in accordance with Executive Order 12044 and the Department's regulations for implementing that order. See 44 FR 11034. Also considered were the "Urban and Community Impacts" of the standard, as specified in Executive Order 12074. These impacts are discussed in a Regulatory Analysis, copies of which are available from the agency's Office of Plans and Programs. The major conclusions of that document are that the standards will produce gasoline savings of 1.2 billion gallons over the life of the 1982 model year light truck fleet. The investment requirement associated with making that improvement would be approximately \$900 million, part of which would be assimilated in normal business as usual capital spending. The average retail price increase resulting from the standards is approximately \$95,

but this initial cost is more than offset by the operating cost savings over the life of the vehicle of about \$470. No significant adverse "urban or community" impacts should result from the standards.

#### I. Environmental impacts of the standards.

The agency also considered the environmental impacts associated with the 1982 light truck standards, in accordance with the National Environmental Policy Act, 42 U.S.C. 4321, *et seq.* As has been the case with all of the agency's fuel economy standards, the main environmental impacts are positive ones associated with the reduction of petroleum consumption. Copies of the Environmental Impact Analysis are available from the individual listed as the "information contact" at the beginning of this notice.

J. Standards for 1983-85. As stated previously, the agency proposed standards for 1983-85 at the same time it proposed the 1982 standards. However, standards for the later 3 years are not being established now, due to the legal requirement for establishment of the 1982 standards by this March and the much more complex issues involved in setting standards for 1983-85. Comments on the 1983-85 standards are due by March 31, 1980, although the agency will consider late comments to the extent possible. It is NHTSA's intent to promulgate these standards this year, to provide ample leadtime for the manufacturers to develop compliance strategies.

In consideration of the foregoing, 49 CFR Chapter V is amended as follows:

1. By deleting the footnote to the table in section 533.5 (a) and by revising the table to read as follows:

Model year	2-wheel drive light trucks		4-wheel drive light trucks		Limited product line light trucks
	Captive imports	Other	Captive imports	Other	
1979 -----		17.2		15.8	
1980 -----	16.0	16.0	14.0	14.0	14.0
1981 -----	16.7	16.7	15.0	15.0	14.5
1982 -----	18.0	18.0	16.0	16.0	—

Issued on March 27, 1980.

Joan Claybrook  
Administrator  
**45 F.R. 20871**  
**March 31, 1980**



## PREAMBLE TO AN AMENDMENT TO PART 533

### Light Truck Average Fuel Economy Standards; Model Years 1983-85 (Docket No. FE 78-01; Notice 4)

**ACTION:** Final rule.

**SUMMARY:** This notice establishes average fuel economy standards for light trucks manufactured in model years 1983-85. Section 502(b) of the Motor Vehicle Information and Cost Savings Act ("the Act") requires that standards be established for each model year at the maximum feasible level. Model year 1983-85 light trucks complying with these standards are expected to consume approximately 10 billion less gallons of gasoline over their lifetime, than would have been consumed if light truck average fuel economy were to remain at the levels of the 1982 standards.

**FOR FURTHER INFORMATION CONTACT:**

Mr. Philip W. Davis, Office of Automotive Fuel Economy Standards (NRM-21), 400 Seventh Street, S.W., Washington, D.C. 20590 (202-472-6902)

**SUPPLEMENTARY INFORMATION:** This notice establishes average fuel economy standards for light trucks manufactured in model years 1983-1985. On December 31, 1979, the agency published proposed standards for light trucks manufactured in model years 1982-85, in 44 FR 77199. Due to the requirement in section 502(b) of the Act that standards be established at least 18 months prior to the start of the affected model year and due to the many complex issues involved in setting standards for the later model years, the agency separately established final standards for the 1982 model year on March 31, 1980. See 45 FR 20871. Previously, the agency established standards for light trucks manufactured in 1979 (42 FR 13807, March 14, 1977), and 1980-81 (43 FR 11995, March 23, 1978, and 44 FR 36975, June 25, 1979). Passenger automobile standards were established

in the Act for model years 1978-80 and 1985 and thereafter (15 U.S.C. 2002 (a)), and administratively by NHTSA for model years 1981-84 (42 FR 33534, June 30, 1977).

Section 502(b) of the Act requires that average fuel economy standards for light trucks be established for each model year at the "maximum feasible average fuel economy level." In determining that level, the agency is directed to consider technological feasibility, economic practicability, the need of the nation to conserve energy, and the effects of other Federal motor vehicle standards on fuel economy. A discussion of how the agency interprets these requirements is set forth in the preamble to the notice establishing the 1981-84 passenger automobile standards, cited in the previous paragraph.

In its proposal the agency invited comment upon a range of possible fuel economy standards for 1983-85. The use of a range of fuel economy values rather than a single value for each model year reflected uncertainty at the time of the proposal with respect to such issues as demand for new, compact truck models, the acceptability to consumers of light trucks with smaller displacement engines (with corresponding higher fuel economy but reduced acceleration and grade-climbing capability), and the existence and magnitude of a claimed fuel economy penalty resulting from emission standards applicable to light trucks beginning with the 1983 model year. Specifically, the ranges of fuel economy values cited in the proposal for 2-wheel drive (4x2) and 4-wheel drive (4x4) light trucks were as follows:

	4x2 (mpg)	4x4 (mpg)
1983	18.0-20.0	15.6-18.0
1984	18.8-21.4	16.1-19.3
1985	19.7-22.4	16.2-19.9

The vehicles covered by these standards include the pickup trucks, vans, and utility vehicles typically used for personal or mixed personal/commercial purposes, i.e., those with gross vehicle weight ratings (GVWR's) up to and including 8,500 pounds.

Comments on the proposed 1983-85 light truck standards were received from the domestic light truck manufacturers, Toyota, the U.S. Department of Energy (DOE) and the Regulatory Analysis Review Group (RARG). Because of the significance of certain issues raised by DOE and RARG, a notice was published in the *Federal Register* inviting public comments on those issues. See 45 FR 35403, May 27, 1980. The comments received on various issues in the rulemaking are summarized below, along with the agency's response to those comments and a summary of the basis for the final standards.

Many of the comments received in this rulemaking and many of the details of the agency's analysis contain confidential information. The confidentiality of this information (typically involving future product plans of the domestic manufacturers, especially for new models which have the greatest effect on fuel economy) prevents the agency from presenting in this notice a detailed description of the comments received and the agency's response to those comments. Nevertheless, the agency has attempted to describe the basis for the final standards by providing a general overview of these matters and an approximation of a "typical" future product plan for compliance with the standards established herein. This approach has been adopted after balancing the public's need to know the basis for the agency's actions against the manufacturers' needs to maintain the confidentiality of their future product plans. The agency in this case has tended to tip the balance in favor of preserving confidentiality. Comment is invited on how the agency could better resolve this conflict between the public's need to know and the manufacturers' need to maintain confidentiality of certain information.

#### Structure of the Standard

In all the light truck standard-setting to date, the agency has provided some form of separate treatment for 4-wheel drive vehicles. In 1979, the manufacturers were given the option of combining all their light trucks into one fleet and complying

with the 4x2 numerical level. In 1980-82, no alternative single standard was provided. Separate standards were provided (under the authority of section 502(b) of the Act to establish separate standards for different classes of light trucks) due to the lower fuel economy of 4x4's and the fact that two companies, American Motors and International Harvester, offered fleets comprised almost exclusively of 4x4 vehicles. Given the lower average fuel economy of those vehicles, any single standard would have had to be set low enough to accommodate those companies (giving no incentive for the other companies to achieve higher fuel economy) or above their capability (possibly penalizing those companies). Separate standards avoided this problem.

While establishing separate standards for each of several vehicle classes reduces inequities for companies with less fuel efficient fleet mixes, it also has certain disadvantages. Separate class standards reduce manufacturers' flexibility in complying with standards, by requiring improvements to each class of vehicles subject to standards rather than permitting the option of making a major improvement to only one class of vehicle. For example, under the classification system used for the model year 1980-82 standards, making a major improvement in the fuel economy of a manufacturer's vans (which are 4x2's) would not assist that company's efforts to meet the 4x4 standard.

RARG requested that NHTSA consider the establishment of a "composite" fuel economy standard as a means of providing varying levels of fuel economy standards based on differences in mix of 4x2 and 4x4 vehicles, or other more narrow classes, without the offsetting disadvantages of separate class standards. Each manufacturer's composite standard, for example could be based upon a projected mix of 4x2 and 4x4 vehicles, with a production-weighted average fuel economy standard being calculated from separate 4x2 and 4x4 targets developed as the agency had developed separate standards in the past. Thus, each company would have a different numerical fuel economy standard, depending on its projected production mix. A manufacturer with a high proportion of 4x2 vehicles would have a higher standard than a manufacturer with a lower proportion of them.

All the major domestic manufacturers commented on the RARG proposal, with Chrysler sup-

porting it and Ford supporting it as an option (to be used at the manufacturer's election) to complying with separate standards. General Motors (GM) supported the concept of a composite standard but opposed separate standards for different companies. American Motors also opposed different standards for each company.

The agency agrees with RARG's goals in proposing the composite standard, but, like some of the manufacturers, doubts the existence of any authority to set different standards for different companies based solely on mix projections. However, the advantages of the composite standard can be achieved in the 1983-85 model years through the addition of an optional single average fuel economy standard applicable to all companies. The use of a single standard (other than one set at a very low level which would sacrifice fuel economy) is possible because of projected substantial improvements in the AM fleet fuel economy (see following sections of this notice) and because International Harvester has decided to stop producing the Scout vehicle. This leaves the average fuel economy levels projected for all the domestic manufacturers within a narrow enough range to make the establishment of a single fuel economy standard for all an effective means of promoting conservation while providing the manufacturers with substantial flexibility in achieving compliance.

The combined standard is established as an option to the separate 4x2 and 4x4 standards which the agency has issued beginning with the 1980 model year. This action is being taken to permit manufacturers seeking greater investment flexibility to opt for the combined standard and to permit manufacturers seeking to increase sales of 4x4 vehicles to opt for the separate standards. Further, this approach will provide some stability in the year-to-year structure of the agency's light truck standards and would provide relief in the post-1985 period should manufacturers such as American Motors not be able to make further fuel economy improvements in their exclusively 4x4 fleets.

#### **Basic Methodology**

Several comments were received, principally from DOE, with regard to the methodology used by the agency to project future model year average fuel economy. DOE objected that the baseline used by NHTSA to project future years' fuel econ-

omy was inappropriate. The baseline used to develop the proposed fuel economy ranges for 1983-85 was the 1981 standards, which were in turn based upon pre-1979 product mix estimates and 1979 fuel economy test results. More recent mix and fuel economy information was not available at the time the agency proposed the 1983-85 standards. In particular, DOE suggested that changes be made in the baseline to reflect the shift in light truck production mix for 1980. Included in this shift are a rerating of certain trucks with large engines above the 8,500 pound GVWR upper limit of the scope of these standards and a shift in the relative proportion of smaller and larger trucks, precipitated by the rapid increase in gasoline prices in 1979-80.

The agency determined that, to meet DOE's concern about the significant change which the domestic light truck fleets and market have undergone and will undergo by 1985, a different projection methodology would be used to set the 1983-85 standards than has been used in the past. That methodology is described in detail in the agency's rulemaking support paper (RSP), copies of which are available from the individual listed as the "information contact" at the beginning of this notice. Generally, future light truck offerings were grouped in seven classes. These classes provide distinctions between various types of vehicles which have clearly different market attributes. The potential characteristics of each group were analyzed (based primarily on the manufacturers' future product plans, particularly where lead time was a controlling factor) and fuel economy value derived. Sales projections for each group of vehicles were also developed based upon information available to the agency, including the manufacturer's own estimates. Once group fuel economy and sales projections are derived, average fuel economy values for each of the model years 1983-85 were calculated.

DOE also suggested revisions to NHTSA's mathematical model used to predict the effect on fuel economy of small changes in vehicle weight, engine displacement, or axle ratio. DOE developed an alternate model which it believes provides a more accurate prediction of the effect of changes in these vehicles' attributes. Because of the DOE analysis, NHTSA reviewed its fuel economy model and has developed a new model which predicts fuel economy levels more accurately than the original

one and, in some cases, the alternative one developed by DOE. Both models provide fuel economy estimates within 5 percent of EPA test data. The major area of concern expressed by DOE was an apparent misunderstanding of the limited manner in which the agency actually used its previous model. This area is described fully in the RSP.

#### Technological Feasibility.

The agency received a number of comments on its analysis of the various methods available to improve light truck fuel economy in the 1983-85 model years, including a comprehensive analysis by the Department of Energy. The DOE analysis concluded that fuel economy levels approximately 1½ mpg above the upper end of the range of fuel economy levels proposed by the agency are achievable by 1985. However, DOE deferred to NHTSA on the manufacturers' capability to finance product changes. On the other hand, the vehicle manufacturers generally recommended that standards be established at the lower end of that range. These overall disagreements resulted from differences in the detailed fuel economy projections for individual truck models, technology, and sales mix made by NHTSA, DOE, and the manufacturers.

For the final rule, the agency is using fuel economy projections for individual new light truck models which tend to exceed those which formed the basis for the proposed standards. While the individual projections used in the proposal were composites reflecting information from a variety of sources (i.e., the same fuel economy value was used for all manufacturers' models of a particular type), final rule projections are manufacturer-specific. This change was made because the agency received information about manufacturers' plans after the issuance of the proposal, because in many instances individual manufacturer plans could not readily be changed at this late date in the product introduction process for the 1981-85 model years (particularly for the earlier years), and because in some cases the manufacturers' own estimates exceeded those of the agency.

The agency's analysis is based on 12 major light truck types being offered in 1983-85 in seven basic market groups. The types include 4x2 and 4x4 versions of the standard size pickup trucks, standard size utility truck, compact pickup trucks (slightly larger than current imported trucks), and

compact utility trucks, along with standard size vans, compact vans (slightly larger than the Volkswagen Vanagon, but smaller than current domestic vans), and a small, front-wheel drive passenger car-derived pickup truck which would be approximately the size of current imports. The precise attributes projected for each manufacturer's light trucks were derived from confidential submissions from those companies and from independent agency analyses. The approximate fuel economy value (in miles per gallon) projected by the agency for each truck type are as follows:

	<u>4x2</u>	<u>4x4</u>
Full size pickup	19-22	16-19
Compact pickup	27-28	23-26
Small pickup (car-based)	27-30	-
Full size van	17-20	-
Compact van	22-26	-
Full size utility	16-18	16-21
Compact utility	25-27	21-24

The above fuel economy values were derived by NHTSA from submissions from the manufacturers and from the agency's independent analysis. The manufacturer's estimates were verified by comparing their planned new models with similar existing models (adjusting for weight or other differences) and by projecting the addition of all available fuel economy improving technology. This technology typically includes a 1 percent fuel economy benefit for accessory improvements, a 3 percent improvement for engine and rear axle lubricants, a 1 percent benefit for tire improvements, and transmission improvements of from 3.5 to 10 percent, depending on the type of transmission involved. In most cases, the agency's independent assessment closely coincided with or was slightly more conservative than that of the manufacturers, in which case the agency used the manufacturer's estimate in the analysis. Where the manufacturer's estimate appeared to be unduly conservative, the agency used its own estimate.

Sales projections for the various models were developed principally from the manufacturers' own estimates, estimates of Data Resources Incorporated, and the agency's own judgment of future light truck demand. The agency made two separate sales estimates of future light truck market conditions, which are described in detail

in the agency's Final Regulatory Analysis, copies of which are available from NHTSA's Office of Plans and Programs. The cases were developed to cover the probable range of light truck sales mixes in 1983-85. In general, Case A assumes that manufacturers undertake an aggressive program of introduction of new, fuel-efficient light truck models and that strong consumer demand for these models will exist. This case represents the agency's estimate of the largest number of new model introductions each manufacturer would likely be able to undertake, considering its financial position, lead time, and competitive pressures. Case B assumes that demand for compact light trucks is less than in Case A, but still significantly higher than in the past when no domestic compact trucks were produced. In the latter scenario, the introduction of new, fuel-efficient models is delayed one or more years compared to Case A due to lack of financial capability, need to invest in passenger car programs, and more limited demand for those trucks. The projected sales fractions for new light truck models for the various manufacturers and in the various model years are as follows:

	Case A	Case B
Compact 4x2 pickup	25-35%	15-25%
Compact 4x4 pickup/utility	10-15%	10%
Compact van	15-25%	0-10%
Small car-based pickup	0-20%	0-10%

It should be noted that not every manufacturer is projected to offer all of these new models, and that current standard size truck models would still account for a substantial portion of light truck sales through 1985 under the agency's projections. A typical composite light truck fleet for 1985 under the agency's analysis would contain roughly the following fleet mix:

	Case A	Case B
Standard 4x2 pickup	20%	40%
Standard 4x4 pickup/utility	10%	15%
Standard van	5%	15%
Compact 4x2 pickup	20%	15%
Compact 4x4 pickup/utility	15%	5%

	Case A	Case B
Compact van	25%	10%
Small car-based pickup	5%	0%

Using these approximate fuel economy values and sales fractions, one can calculate average fuel economy values of about 22 mpg for Case A and 20 mpg for Case B. However, such averages are only approximations (used here because of the confidential nature of much of the specific fuel economy values and sales projections) and do not reflect the problems which individual manufacturers face in financing new models.

With respect to the 1983 and 1984 model years, the agency projected a fairly even rate of introduction of these new models, given the major investments required for production of a new vehicle and the current financial difficulties of the domestic manufacturers. This projection leads to average fuel economy levels increasing about 1.5 to 2 mpg per year over the level of the 1982 standards (about 17.5 mpg) for Case A or about 1 mpg per year for Case B, on a total domestic light truck fleet basis.

As previously stated, the agency has chosen to set final standards for 1983-85 relying heavily on the domestic manufacturers' estimates of new model fuel economy values and market shares. This was done because the agency recognized the current financial difficulties of the domestic manufacturers (see discussion below) and independently verified the new model fuel economy values provided by the manufacturers.

DOE's main objectives to NHTSA's new model projections were that the new compact pickup trucks should be projected to be the same size as current imports or smaller (rather than slightly larger as NHTSA projects), that the engines projected for those vehicles should be all 4-cylinder (rather than a mix of 4 and 6-cylinder engines as NHTSA projects), and that redesigned standard pickup trucks should be projected to have lower weights than NHTSA had estimated.

To a great extent DOE's disagreement with NHTSA with respect to the fuel economy levels projected for new models was phrased in terms of DOE's view of the domestic manufacturers' plans to offer new models. Based on numerous submissions to NHTSA, DOE's understanding of those plans is incorrect. Apparently the domestic manu-

facturers have determined that new compact models slightly larger than those now offered by the foreign companies will be an attractive alternative for consumers, providing more utility to the truck user at only about a 2 mpg sacrifice in fuel economy. The recent trend for the foreign manufacturers has been to slightly increase the size of their trucks. The domestic companies apparently feel that their planned small trucks have the potential to draw some purchasers who might otherwise consider full size trucks, and that offering new models identical to the imports might be less effective in attracting those purchasers and thereby result in less overall energy savings. In any case, the question of whether the domestic companies could offer smaller new models than they now plan is largely irrelevant, due to the advanced stage of their product introduction process (trade press reports indicate manufacturers will begin to introduce these models in the 1982 model year).

The agency received several comments on technological improvements projected for the 1983-85 model years. One area of comment involved the 1 percent fuel economy benefit projected for improved engine accessories. DOE commented that a 2 percent improvement is feasible, and some manufacturers indicated that a lesser improvement is the most which could be accomplished through 1985. The agency has retained its original projection (based on several research studies and manufacturer submissions) for the final rule, with the exception that accessory improvements were not projected for carry-over standard size trucks. No improvement was projected for the latter vehicles, due to limitations on manufacturer resources given the planned major product actions and the inefficiency associated with devoting resources to vehicles which would account for steadily diminishing portions of total sales and which would be replaced by new models in the near future. The agency's original 1 percent benefit was retained due to the absence of any data or analysis submitted by the commenters to support any other position.

With respect to the agency's projection of a 1 percent fuel economy benefit for reduced rolling resistance, none of the manufacturers presented data or engineering analyses supporting their claims that no such benefit is feasible. DOE argued that an additional 0.5 percent benefit should be

provided for reduced brake drag, but submitted no data to support that claim. Here again, in the absence of supporting data or analysis for any contrary position, the agency retained its original position.

DOE also suggested that aerodynamic drag and weight reduction improvements should be projected for the carry-over standard size vans and weight reduction improvements alone for standard pickup trucks. DOE would apply these improvements only where a manufacturer did not plan to replace these models in the near future. NHTSA did not adopt this suggestion for vans because of limited manufacture resources and because the cost associated with such changes could not be justified given the small potential fuel economy benefit and the relatively small market share (about 5 percent for Case A). With respect to the weight reduction comment for carryover pickup trucks, the agency believes that meaningful weight reduction can be obtained only through major redesigns. The agency's basis for projecting no further major redesigns for the domestic manufacturers is discussed in the "economic practicability" section of this notice. Due to the economic difficulties of the domestic manufacturers and the large number of lay-offs of technical personnel in those companies (as prominently reported in the press), resources will likely be hard-pressed simply to introduce the planned new models.

In the agency's proposal, an alternative set of assumptions (Case 4) was developed to obtain comment on the extent to which engine downsizing could be accomplished as a means of improving light truck fuel economy. The Case 4 scenario involved a major shift to the smallest displacement engines currently offered. DOE projected that a lesser reduction in engine displacement could be accomplished to provide about a 5 percent fuel economy improvement. According to DOE, this improvement could be accomplished without degrading vehicle performance, through improvements in engine power efficiency. The manufacturers generally argued that only slight engine downsizing could be accomplished, with Ford stating that a 2 percent fuel economy benefit could be obtained and GM stating that the feasibility of any engine downsizing in the future is "questionable."

For the final rule, the agency is projecting major engine downsizing through the introduction of new, compact truck models. Given current low



sales of domestic trucks and the strong competition being encountered from the imports, the agency cannot project any further reductions in engine size (with probable reductions in vehicle acceleration capability) which might further jeopardize the marketability of these vehicles. DOE provided no data or analysis and NHTSA knows of none to support its claim that further engine downsizing could be accomplished without sacrificing performance capability or durability.

The final technological area addressed by commenters is transmission improvements. The agency is retaining its original projections of a 5 to 7 percent improvement from 4-speed wide ratio manual transmissions (whether overdrive or direct drive), a 3.5 percent improvement when adding a lock-up clutch to a 3-speed automatic transmission, and a 10 percent improvement for automatic overdrive transmissions with lockup clutch. Several manufacturers argued that lower improvements should be projected, but they either did not support their claims with data or, in one case, submitted data (after the agency requested it) which was more supportive of the agency's position than the manufacturer's.

Ford argued that only a 0.5 percent improvement in fuel economy is available for its light trucks through the use of improved engine lubricants. Ford supported its position with data generated by the ASTM Fuel Efficient Oils Task Force, which indicates that Ford's current factory fill oil has superior fuel efficiency characteristics than the oils used by other manufacturers. In other words, it appears that Ford has already achieved part of the benefit available through the use of improved lubricants, leaving a small benefit remaining for the future. Therefore, the agency adopted Ford's projected improvement for our analysis of that manufacturer's capability. The agency continued to use 2 percent for the other manufacturers.

The manufacturers unanimously suggested that the agency continue its policy of excluding diesel engines in standard-setting analyses until the health related questions associated with the widespread use of those engines are settled. DOE, on the other hand, argued that the agency's analysis should reflect the inclusion of this technology, which represents one of the most significant methods available for improving light truck fuel economy. Although EPA has estab-

lished diesel particulate standards, the health effect issue remains open. Therefore, the agency's analysis reflects the plans of manufacturers to offer diesel engines in 1983-85 model year light trucks, but does not project any use of diesels beyond those plans. The agency is reluctant to project further dieselization while substantial health questions remain to be answered. The levels of the final standards do not require the use of diesels for compliance, since all companies can meet the standards without any diesel light trucks being offered.

Ford commented that the agency should not project the use of PROCO ("programmed combustion") engines in 1983-85 model year light trucks. Ford recently announced the cancellation of its V-8 PROCO engine program due to a variety of economic and technical problems. Therefore, the agency will delete those engines from its analysis.

### **Economic Practicability**

The current depressed condition of the domestic auto industry has had a major impact on the agency's standard-setting process. Although the low fuel efficiency of current domestic vehicles was initially a major contributing factor to that condition, the agency recognizes that major improvements in light truck fuel economy must be financed mainly through revenues generated from the sale of current vehicles. The recent downturn in the national economy has severely limited the resources available to the manufacturers to improve light truck fuel economy.

The agency performed cash flow analyses for Ford and General Motors, to assess their capability to finance fuel economy improvements. For Chrysler, the agency has relied on the more detailed analyses of the Chrysler Loan Guarantee Board. No analysis was conducted for American Motors, pending the completion of its financial arrangement with Renault. The agency's analysis for General Motors' U.S. and Canadian automotive operations in the 1980-85 period shows a loss of about \$500 million for 1980, but a return to profitability for the remainder of the period. Due to the heavy capital investment plan announced by GM through 1985, net cash flow would be negative for GM through 1983, and would turn positive thereafter. With respect to Ford, the agency's projections are more pessimistic. The agency's analysis shows losses of over \$2.5 billion for Ford's

domestic automotive operations in 1980, with annual but smaller losses through 1982. Thereafter, Ford would return to profitability. Even though Ford has recently announced reductions in its planned capital expenditures, its cash flow would remain negative until 1985, with a cumulative negative cash flow in 1980-84 of over \$7 billion. This large projected negative cash flow led the agency to project no major capital expenditures beyond those planned by Ford for purposes of this rulemaking. (See section h of this notice.)

#### **The Effects of Other Federal Standards on Fuel Economy**

The manufacturers all argued that their ability to improve fuel economy in model years 1983-85 would be impaired by changes in the stringency of light duty truck emission standards and related requirements. Those changes, which EPA had proposed to make effective beginning with the 1983 model year but which were recently delayed until 1984 to provide additional leadtime, would, in the manufacturers' view, result in fuel economy penalties ranging from 3 to 7 percent. General Motors has recently submitted 1981 model year data to both NHTSA and EPA which purports to show that the penalty could range as high as 13 percent for some light trucks.

The manufacturers have based their claims on comparisons of 1980 49-state fuel economy and the fuel economy of light trucks meeting the more stringent California standards. The manufacturers believe that the stringency of the 1980 California standards approximates that of the 1984 Federal emission standards for light duty trucks. Both NHTSA and EPA have been wary in past rulemakings of relying on Federal-California fuel economy comparisons in predicting future model year effects because of the additional leadtime available prior to the nationwide application of more stringent standards, questions about emission control technology used, and limitations on manufacturer resources available for developing and refining emission control technology to be used on vehicles sold only in one state.

The most advanced emission control technology currently available is a system employing a 3-way catalyst with interactive electronic control of air-to-fuel ratio, spark advance, exhaust gas recirculation, and other parameters, and other emission-related hardware. This type of technology is being

used to meet 1981 passenger automobile emission standards with little or no fuel economy penalty compared to automobiles meeting prior years' standards. Some of the manufacturers' projections of 1984 light truck fuel economy penalties are based on the use of this type of technology, but others do not include it, apparently due to cost considerations. In some cases, the manufacturers have based their projections of penalties on the use of simple oxidation catalyst systems, possibly incorporating less sophisticated electronics. NHTSA's analysis of limited data from 1981 certification trucks which used some form of electronic controls showed no appreciable difference in fuel economy between California and Federal versions.

EPA, in establishing the 1984 standards, concluded that the 1984 emission levels can be met without fuel economy penalty by using electronic engine control systems, improved oxidation catalysts, and air injection. Three-way catalysts would not be needed in most cases. EPA concluded, based upon a comparison of 1980 California and Federal light duty trucks, that with no improvement over the current California technology, a penalty of 5.2 percent on average would result. Since EPA concluded that California emission requirements for 1980 are more stringent than the 1984 Federal standards and adjusting for future engine mix changes, the fuel economy penalty associated with the 1984 standards would be only 4 percent if no technology improvements were implemented. Based on EPA's review of published technical literature, that agency concluded that through the use of "moderately complex" electronics (controlling spark advance and exhaust gas recirculation rate) together with improved oxidation catalysts and air injection, the 1984 emission standards could be met without fuel economy penalty. Compliance with the standards was projected by EPA to add \$95 to the price of 1984 light trucks. The EPA analysis appears to be the most complete and detailed analysis of the emission penalty issue now available. Therefore, the agency projects for purposes of this final rule that the 1984 emission levels can be met without fuel economy penalty, consistent with the position taken by the agency in setting the 1981-84 passenger automobile fuel economy standards.

Ford projected an additional fuel economy penalty for a change in stringency in the light duty truck emission standards for oxides of nitrogen in

the 1985 model year. Such a change has not been proposed at this point. Therefore, NHTSA deems it premature to attempt to estimate the magnitude of any fuel economy penalty which might result from such changes.

The manufacturers also estimated that adverse fuel economy effects would result from future changes in safety standards applicable to light trucks. These changes would result in slight increases in vehicle weight. Since the agency adopted the manufacturers' own weight estimates for future vehicles, their claims of safety-related weight additions have been adopted.

#### The Need of the Nation to Conserve Energy

The United States imported only 15% of its oil needs at a cost of \$1.1 billion in 1955. In 1970, imported oil accounted for 31% of total consumption and cost the nation \$3 billion. But by 1975, 49% of the domestic demand for oil had to be imported at a cost of \$26.3 billion. This eight-fold increase in the cost of imported oil over five years was the result of huge OPEC price increases, falling domestic crude oil production, and continued increase in domestic demand. This trend has continued. By 1979, imported oil, constituting 58% of petroleum consumed, cost the nation about \$60 billion; comparable import cost estimates for 1980 are \$82 billion, and at 51 percent of domestic petroleum consumption.

The nation has become increasingly dependent for its oil supplies on the actions and decisions of a few foreign governments. This dependence has been demonstrated in the aftermath of the revolution in Iran when that country's oil production was stopped entirely in December 1978 and, once resumed, only returned to about one-half of its former level. Although the U.S. no longer imports oil from Iran, this reduction was felt by all importers because it represented the difference between satisfying current world oil demand and a shortage of supply. OPEC, which supplied 83% of the U.S.'s imported oil in 1978, has taken advantage of the tight world oil market by more than doubling prices from \$12.70 per barrel in December 1978, to more than \$30 per barrel as of July 1980. Currently, prices on the world "spot" market are about \$35 per barrel. An increase of this magnitude has severe adverse impacts on our trade balance, inflation, economic growth, unemployment, and confidence in

the dollar as an international reserve currency.

The rapid transition from a condition of apparent worldwide surplus in 1978 to one of shortage in 1979 has shown the instability of the world oil market. Now the Iran-Iraq war may again bring worldwide shortages. Thus, the nation's economic growth and national security are being heavily constrained by the decisions of a few foreign countries which control world oil prices and production.

The U.S. can change this situation by increasing its domestic energy production and by reducing demand. The fuel economy standards program helps to reduce demand by motor vehicles. Light trucks account for about 7% of our total oil consumption (20% of automobile consumption) and an improvement in their fuel efficiency, beyond the level scheduled to be achieved through the MY 1982 standards, is considered an integral part of the nation's total effort to conserve energy. Increased light truck fuel economy efficiency would contribute directly to reduced U.S. dependence on foreign oil and help limit foreign oil imports to a level no greater than the amount imported in 1978—in accordance with the President's pledge.

#### Selection of Final Standards

Based on the analysis described above, the agency projects that the following combined fuel economy levels can be achieved for model years 1983-85:

	Case A			Case B		
	1983	1984	1985	1983	1984	1985
AM	20.3	21.7	22.3	20.2	21.2	21.5
Chrysler	20.6	23.9	27.0	20.3	20.4	25.7
Ford	20.4	21.8	21.8	19.0	19.3	19.4
GM	22.7	23.2	23.5	21.1	21.2	22.0

No separate analysis was conducted for the foreign manufacturers, which project exceeding these fuel economy levels by wide margins.

The legal requirements for establishing the maximum feasible average fuel economy level for a particular model year, and thereby the levels of fuel economy standards for that year, are discussed in the preamble to the agency's final rule establishing the 1982 light truck standards. See 45 FR 20875-6, March 31, 1980. In general, the agency is directed to take "industry-wide considerations" into account in establishing standards, and should

not necessarily key the standards to the level of the least capable manufacturer. However, the agency must weigh the benefits to the nation of setting standards above such a manufacturer's level against the difficulties of individual companies. The agency must also consider the possible competitive harm associated with placing a severe strain on any company, given the small number of domestic manufacturers. In this proceeding, the agency is considering not only the range of capabilities among the various manufacturers but also the ranges of capability for individual companies, given the uncertainties associated with their abilities to finance new models and the ultimate market acceptance of those models.

The agency has determined that standards requiring the high rates of model introduction and high sales levels of compact trucks inherent in Case A should be gradually phased in. Therefore, the standards established for 1983 are based on the Case B set of assumptions. Even this less aggressive scenario results in an increase in fuel economy of about 1.5 mpg over the 1982 standards, comparable to the rate of increase in the passenger automobile standards over the 1980-85 period. As discussed previously in this notice, the Case B levels would permit deferral of new model introductions for some manufacturers and reduce the risk associated with only modest market acceptance of the new truck models. Relying on Case B for the 1983 model year reflects uncertainty regarding the national economy, the ability of the manufacturers to finance major new programs in the near future, and the recent reduced overall consumer demand for cars and trucks.

For 1984 and 1985, the agency has relied to a greater extent on the Case A scenario, with 1984 projections falling between Case A and Case B and 1985 projections more closely approaching Case A. This gradual increase in relative stringency of the agency's projections is due in part to the greater leadtime available for developing new programs and for generating the capital necessary to finance the required new products. Also reflected is greater long term certainty that, as gasoline prices increase, market demand for compact, fuel-efficient truck models will also increase. Although the past seven years have brought brief gasoline supply gluts or price reductions, it is virtually certain that in the long run the trend toward reduced gasoline supplies and higher prices will continue.

With respect to the range of fuel economy capabilities among manufacturers, the agency has determined that it is appropriate in this proceeding to set the 1983-85 light truck fuel economy standards at levels achievable by the "least capable manufacturer." As stated by Ford in its comments on the 1983-85 standards, the reasonableness of a decision to set standards above the level of the least capable manufacturer depends upon factors such as economic conditions and the degree of burden placed upon the individual companies.

The severe economic problems facing the manufacturers (and in particular Ford, the least capable manufacturer for 1983-85 based on the agency's analysis) were discussed in prior sections of this notice. Setting standards above the levels projected for Ford in this proceeding could result in Ford attempting to introduce additional compact truck models or major new technology programs such as diesel engines. While such actions, if successfully completed, might benefit Ford and the nation in the long run, the agency recognizes the uncertain availability of financial resources to take such actions. Setting standards above Ford's level might also result in product restrictions by Ford (e.g., limiting the sale of larger trucks and engines). Such actions could further erode Ford's economic situation. Finally, Ford could elect to pay civil penalties rather than attempting to meet the higher standards. Penalties could amount to as much as \$75 million per year. While even a penalty that large might not result in insolvency for a company as large as Ford or a "substantial lessening of competition" in the truck market (thereby permitting a reduction of penalties under section 508 of the Act), it is certainly substantial enough to make future fuel economy improvements even more difficult to finance.

The harm resulting from establishing fuel economy standards at Ford's level is the lost fuel savings. Considering the nation's serious energy problem (see discussion of "need of the nation to conserve energy," *infra*), the agency does not lightly dismiss this potential loss. However, given the seriousness of the industry's current financial problems, this potential loss in fuel savings is, in the agency's view, outweighed by the potential harm to Ford in setting standards above the level it can reasonably achieve.

The situation faced by the agency in setting the

1983-85 standards differs from that for the 1982 final rule, in which the agency set standards above the level of the least capable manufacturer. The most important difference between the two situations is that the 1982 proceeding involved setting the fuel economy standards above the level of a much smaller portion of the light truck fleet. Chrysler, whose trucks represent 10-15 percent of domestic sales, had the lowest fuel economy projection in that proceeding. Ford accounts for about 35 percent of domestic sales. Further, Chrysler was projected to have sufficient monetary credits to avoid paying penalties for its 4x2 trucks, and to partially offset penalties for its much smaller 4x4 fleet. The maximum total penalty should be under \$1 million.

By setting standards at the level of the least capable manufacturer and gradually shifting from the Case B scenario in 1983 toward the Case A scenario in 1985, fuel economy standards of 19 mpg in 1983, 20 mpg in 1984, and 21 mpg in 1985 result.

The agency also calculated separate 4x2 and 4x4 fuel economy levels. This was done by projecting a compliance strategy product plan for the least capable manufacturer to just meet the combined fuel economy standards and disaggregating that company's fleet into separate 4x2 and 4x4 sub-fleets. The resulting 4x2 and 4x4 standards are as follows: 19.5, 20.3, and 21.6 mpg for 4x2's in 1983-85, respectively, and 17.5, 18.5, and 19.0 mpg for 4x4's in those same years.

#### Other Comments Received

RARG proposed that an alternative methodology be used to set the 1983-85 fuel economy standards. This methodology would require that standards be based on available technological improvements which provide fuel savings greater than their cost. The costs and benefits which go into this determination would include not only the relatively straightforward gasoline pump prices and technology costs but also some quantification of national security, balance of payments and related benefits as well as truck utility degradation (e.g., smaller payload, reduced acceleration capability) costs. The manufacturers supported this approach in their comments.

The RARG methodology is a slight variation of the cost-benefit test previously proposed by the Council on Wage and Price Stability and rejected by the agency as being inconsistent with the Act.

Title V of the Cost Savings Act requires that standards be set at "maximum feasible" levels, which necessarily implies that all possible fuel economy improvements should be implemented. Given the historical background of the Act, passed as a response to the 1973 Oil Embargo, it appears that national security considerations, not consumer cost savings, are the primary focus of the legislation. Further, RARG concedes that setting a precise value for the national security benefits and vehicle utility changes would be quite difficult. It is the agency's view that Congress did not intend that the agency in the rulemaking process be required to place a dollar value on factors (particularly the national security benefits) which are not quantifiable, and to use these numbers as the basis for setting standards. Nevertheless, the agency's fuel economy rulemaking has to date produced standards which produce substantial net benefits for consumers, and the standards established herein are no exception.

GM argued that in valuing gasoline savings, a 20 percent discount rate should be used. The agency has used a 10 percent discount rate, which is standard for government programs, and constant dollars to account for inflation. GM bases its argument on its claim that light truck purchases are generally a "producer capital investment" and that the opportunity cost for capital, together with a "risk premium" to account for risks associated with truck investments, would justify the 20 percent rate. However, the agency has presented data in its various light truck rulemaking proceedings which shows that light trucks are principally used for personal, agricultural, or small commercial operations. In those situations, a 10 percent discount rate is a more accurate representation of the opportunity cost.

GM also argued for a change to the agency's classification regulations to permit redesigned versions of 4x2 utility vehicles to continue to be classified as light trucks even if their GVWR were to be reduced below 6,000 pounds. Under the agency's current regulations in 49 CFR Part 523, such a change in the vehicles' GVWR would result in their being classified as passenger automobiles. GM argues that manufacturers should not be penalized (including these vehicles in passenger automobile fleets might lower both car and truck CAFE's) for reducing the weight of their trucks. If adopted, such an amendment

would presumably apply to future compact 4x2 utility vehicles as well.

Chrysler also requested a revision to the vehicle classification regulations to assure that future compact passenger vans would be classified as light trucks, rather than as passenger automobiles. Current regulations classify large passenger vans as light trucks based on the ability of passenger van users to readily remove the rear seats to produce a flat, floor level cargo-carrying space. Future compact passenger vans might not be able to satisfy that requirement. The agency's technical analysis for this rulemaking treats 4x2 utility vehicles and passenger vans as light trucks, consistent with the classification of current vehicles. However, this treatment should not be interpreted as a statement by the agency that all future designs of 4x2 utility vehicles and compact vans will continue to be classified as light trucks. The agency will in the near future issue a notice inviting comment on the proper classification of these vehicles, and what revisions, if any, should be made to current vehicle classification regulations. Based on all information now available to the agency, the levels of fuel economy standards established herein would not change if the vehicles in question were classified as passenger automobiles.

AM again argued for the inclusion of captive import light trucks in a domestic manufacturer's CAFE. This issue has been fully dealt with in prior rulemakings and, in the absence of any new arguments, the agency will not modify its requirement that captive import light trucks must comply separately with light truck fuel economy standards.

#### Impacts of the Standards

The economic consequences and other impacts of the 1983-85 standards were considered by the agency in accordance with Executive Order 12221 and the Department's implementing regulations. See 44 FR 11034. The agency also considered the "Urban and Community Impacts" of the regulations, as required by Executive Order 12074. The results of this are discussed in the agency's

Regulatory Analysis, copies of which are available from the agency's Office of Plans and Programs. That document states that capital investments of approximately \$3.8 billion will be required to raise the fuel economy of the domestic light truck fleet from the level of the 1982 standards to the level of the 1985 standards. This investment would reduce expenditures for imported petroleum by \$7 billion over the life of the 1983-85 light truck fleet. Operating cost savings result from the increased fuel efficiency of the 1983-85 fleets. On a discounted basis, they amount to \$1,250 per vehicle over its 128,000 mile life. Net consumer savings—operating cost savings less retail price increases—are nearly \$1,200 per vehicle. On a benefit to cost basis, these standards would have a ratio of 19 to 1. Or, the purchaser of a 1985 truck would be paying, through higher purchase prices, about 5 cents for each of the 1,200 gallons that vehicle would save over its life—5 cents to save each of 1,200 gallons that would otherwise have cost the purchaser about \$1.50 per gallon. These standards result in a 20 percent reduction in operating costs for a MY 1985 light truck.

The environmental impacts of the 1983-85 standards were also considered, as required by the National Environmental Policy Act, 42 U.S.C. 4321, *et seq.* The major environmental impacts associated with the standards were found to be positive, such as reductions of petroleum consumption and material usage (less iron and steel). No major adverse impacts were projected.

Issued on December 8, 1980.

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Joan Claybrook  
Administrator

45 FR 81593  
December 11, 1980

**PART 533—LIGHT TRUCK FUEL ECONOMY STANDARDS**  
**(Docket No. FE 77-05; Notice 5)**

**Sec.**

**533.1 Scope**

**533.2 Purpose**

**533.3 Applicability**

**533.4 Definitions**

**533.5 Requirements**

**533.6 Measurement and calculation procedures**

**S533.1 Scope.** This part establishes average fuel economy standards pursuant to section 502(b) of the Motor Vehicle Information and Cost Savings Act, as amended, for light trucks.

**S533.2 Purpose.** The purpose of this part is to increase the fuel economy of light trucks by establishing minimum levels of average fuel economy for those vehicles.

**S533.3 Applicability.** This part applies to manufacturers of light trucks.

**S533.4 Definitions.**

*(a) Statutory terms.*

(1) The terms "average fuel economy," "average fuel economy standard," "fuel economy," "import," "manufacture," "manufacturer," and "model year" are used as defined in section 501 of the Act.

(2) The term "automobile" is used as defined in section 501 of the Act and in accordance with the determinations in 49 CFR 523.

(3) The term "domestically manufactured" is used as defined in section 503(b) (2) (E) of the Act.

(b) *Other terms.* As used in this part, unless otherwise required by the context—

"Act" means the Motor Vehicle Information Cost Savings Act, as amended by Pub.L. 94-163.

"Light truck" is used in accordance with the determinations in 49 CFR Part 523.

"Captive import" means, with respect to a light truck, one which is not domestically manufactured but which is imported in the 1980 model year or thereafter by a manufacturer whose principal place of business is in the United States.

"4-wheel drive, general utility vehicle" means a 4-wheel drive, general purpose automobile capable of off-highway operation that has a wheelbase of not more than 110 inches, and that has a body shape similar to 1977 Jeep CJ-5 or CJ-7, or the 1977 Toyota Land Cruiser.

"Limited product line light truck" means a light truck manufactured by a manufacturer whose light truck fleet is powered exclusively by basic engines which are not also used in passenger automobiles.

"Basic engine" means a unique combination of manufacturer, engine displacement, number of cylinders, fuel system (as distinguished by number of carburetor barrels or use of fuel injection), and catalyst usage.

**S533.5 Requirements**

(a) Each manufacturer of light trucks shall comply with the following average fuel economy

Model year	2-wheel drive light trucks		4-wheel drive light trucks		Limited product line light trucks
	Captive imports	Other	Captive imports	Other	
1979		17.2		15.8	
1980	16.0	16.0	14.0	14.0	14.0
1981	16.7	16.7	15.0	15.0	14.5
1982	18.0	18.0	16.0	16.0	—

Model year	Combined Standard		2-wheel drive light trucks		4-wheel drive light trucks	
	Captive imports	Others	Captive imports	Others	Captive imports	Others
1983	19.0	19.0	19.5	19.5	17.5	17.5
1984	20.0	20.0	20.3	20.3	18.5	18.5
1985	21.0	21.0	21.6	21.6	19.0	19.0

(45 F.R. 81593—December 11, 1980, Effective: 1983-1985 model year)

standards, expressed in miles per gallon, in the model year specified as applicable:

(b) (1) For model year 1979, each manufacturer may:

(i) Combine its 2- and 4-wheel drive light trucks and comply with the average fuel economy standard in paragraph (a) for 2-wheel drive light trucks; or

(ii) Comply separately with the two standards specified in paragraph (a).

(2) For model year 1979, the standard specified in paragraph (a) for 4-wheel drive light trucks applies only to 4-wheel drive general utility vehicles. All other 4-wheel drive light trucks in that model year shall be included in the 2-wheel drive category for compliance purposes.

(c) For model years 1980 and 1981, manufacturers of limited product line light trucks may:

(1) Comply with the separate standard for limited product line light trucks, or

(2) Comply with the other standards specified in § 533.5(a), as applicable.

[(d) For model years 1983-85, each manufacturer may:

(1) Combine its 2- and 4-wheel drive light trucks (segregating captive import and other light trucks) and comply with the combined average fuel economy standard specified in paragraph (a); or

(2) Comply separately with the 2-wheel drive standards and the 4-wheel drive standards (segregating captive import and other light trucks) specified in paragraph (a) of this section. (45 F.R. 81593—December 11, 1980, Effective: 1983-1985 model year)].

#### **S533.6 Measurement and calculation procedures.**

(a) Any reference to a class of light trucks manufactured by a manufacturer shall be deemed:

(1) To include all light trucks in that class manufactured by persons who control, are controlled by, or are under common control with, such manufacturer; and

(2) To exclude all light trucks in that class manufactured (within the meaning of paragraph (a) (1) of this section) during a model year by such manufacturer which are exported prior to the expiration of 30 days following the end of such model year.

(b) The average fuel economy of all light trucks that are manufactured by a manufacturer and are subject to S533.5(b) or to S533.5(c) shall be determined in accordance with procedures established by the Administrator of the Environmental Protection Agency under section 503(a) (2) of the Act.

**42 F.R. 13807  
March 14, 1977**



## Notice of Interpretation

### (Docket No. FE 79-01; Notice 1)

**Summary:** This notice announces the agency's interpretation of the extent to which the law permits, with respect to 1979 and 1980, monetary credits earned by manufacturers of light trucks for exceeding fuel economy standards in one year to be applied to civil penalty liabilities for violating those standards in the other year. This interpretation is being issued at the request of several manufacturers to assist them in planning compliance with light truck fuel economy standards.

*For further information contact:*

Mr. Theodore Bayler, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590, 202-755-9384.

**Supplementary information:** Section 502(b) of the Motor Vehicle Information and Cost Savings Act ("the Act"), 15 U.S.C. 2002(b), requires the Secretary of Transportation to establish average fuel economy standards for light trucks manufactured in each model year beginning with 1979. That provision also authorizes the Secretary to establish separate fuel economy standards for different classes of light trucks. The Secretary used this authority to establish separate 1979 standards for "4-wheel general utility vehicles" with a gross vehicle weight rating (GVWR) not greater than 6,000 lbs. and for "all other" light trucks in the same GVWR range. Manufacturers were, however, given the option of having all of their 6,000 lbs and under GVWR light trucks comply with the more stringent standard for "all other" light trucks, rather than complying separately with the two standards.

Different classes were established by the agency beginning with the 1980 model year. Separate standards were established for two- and four-wheel drive light trucks, and subclasses were established within those classes for captive import (i.e., trucks

manufactured abroad and sold through a domestic manufacturer's dealer network) and domestic light trucks. A separate standard was also established for "limited product line light trucks," i.e., those produced by companies whose light trucks employ exclusively engines which are not also used in passenger cars. The change in the light truck classification was made because of the simultaneous change in the applicability of the fuel economy standards to cover light trucks up to 8,500 pounds GVWR. The new classification system reflects the makeup of the larger fleets regulated in 1980 and the differences in the fuel economy improvement potential of the principal types of light trucks in that fleet. See discussion of this classification system in 42 FR 63185-7, December 15, 1977.

Compliance with fuel economy standards is determined on the basis of the production-weighted average of the fuel economy ratings of all the vehicles subject to a standard in a given model year. The enforcement provisions of the Act extend this averaging concept to compliance determinations for different model years. Civil penalties for violating a standard applicable to a class of light trucks in a model year are assessed at the rate of five dollars per vehicle for each tenth of a mile-per-gallon by which the average fuel economy of a manufacturer's vehicles subject to the standard falls short of that standard. Monetary credits for exceeding a standard are earned at the same rate. These credits may be applied to offset civil penalties which are assessed either in the immediately preceding or following model year. See section 508 of the Act.

A key limitation with respect to the carrying backward or forward of credits is that "any credit . . . may only be applied to automobiles of the same class for which the credit was earned." See Conference Report on the Act, H.R. Rep. No. 94-700, 94th cong., 1st Sess. 159 (1975), and section

508(a)(3) of the Act. It appears that this requirement is intended to prevent manufacturers from defeating the purpose of a classification system by applying credits earned for trucks in one class against penalties for violating the standard in another class; rather, each class of trucks is expected to comply with standards (at least on average over a period of years) or be penalized. However, the requirements of section 508, as elaborated in the Conference Report, could be read to prohibit the manufacturers from using earned credits simply because the agency decides to change the boundaries of existing classes. Therefore, the agency sought comment on how the requirement that credits be transferred only within classes should be applied where the agency changed truck classifications, as it did between 1979 and 1980. See the agency's notice of proposed rulemaking on the 1980-81 light truck fuel economy standards, 42 FR 63194, December 15, 1977.

Only the Center for Auto Safety and Ford Motor Company commented on the issue in response to the agency's request. The Center for Auto Safety argued that the requirement in the Act that credits must be applied only within a class is absolute, and only when a manufacturer's product offerings happen to coincide with the agency's new and old classes, so that the classes are in effect identical, could credits be transferred. Ford, on the other hand, argued that credits earned for vehicles in one class should be applicable to penalties in any class (in the prior or subsequent year) which overlaps with the former class. American Motors Corporation provided comments on the issue after the completion of the 1980-81 rulemaking. That company suggested that the 1979 "general utility vehicle" class and the 1980 four wheel drive class be treated as identical for purposes of applying credits; the same would be true for the 1979 standard for "all other" trucks and the 1980 two-wheel drive standard. American Motors proposed that credits be transferable only within these pairs of standards.

The agency interprets section 508 of the Act to require as much commonality as possible between classes in transferring credits, but not absolute identity. The intent of the Act is clearly to grant

credits for "over achievement" in a particular model year by a manufacturer, and it would frustrate that intent if there were to be a forfeiture of credits when NHTSA decides to change the scope of classes.

In transferring credits earned in the 1979-80 model years, the agency will attempt to assure that those credits are applied to offset civil penalties on the same types of vehicles as those which generated the credits. This result will be pursued by pro-rating the earned credits according to the number of vehicles in the credit-earning class which would fall in the class subject to a civil penalty in the prior or subsequent year.

For example, in applying 1979 credits to 1980, credits earned by four-wheel drive general utility vehicles in 1979 would be applicable to any penalties assessed against domestic four-wheel drive light trucks or captive import four-wheel drive light trucks in 1980, with the amount applicable to each 1980 four-wheel drive class to be determined based on the portion of the 1979 utility vehicles which is captive imports and the portion which is domestic. If all 1979 utility vehicles were domestic, 1979 credits for that class of light truck would be applicable only to domestic four-wheel drive light trucks in 1980.

Similarly, in applying 1980 credits to 1979, credits earned by 1980 four-wheel drive captive import trucks would be divided according to the proportion of those trucks which meet the definition of 4-wheel drive general utility vehicle and credits would be assigned on a pro-rata basis to the two 1979 truck classes, if either 1979 standard were violated. If the manufacturer elected to comply with the single, combined 1979 standard, then all credits earned by 1980 trucks would be applicable to 1979 civil penalties. These assignments of credits would be made without regard to the gross vehicle weight ratings of affected vehicles, since none of the affected truck classifications depend on GVWR.

Issued on November 1, 1979.

Frank Berndt  
Chief Counsel

44 F.R. 64943  
November 8, 1979

## **PREAMBLE TO PART 535—THREE-YEAR CARRY FORWARD AND CARRYBACK FOR MANUFACTURERS OF LIGHT TRUCKS**

**(Docket No. FE 80-02; Notice 1)**

**ACTION:** Final rule.

**SUMMARY:** This notice establishes regulations governing the transfer between model years of monetary credits earned by motor vehicle manufacturers for exceeding the average fuel economy standards for light trucks. Manufacturers have previously been able to apply credits to the year immediately preceding and to the year immediately following the year in which they are earned. Section 6(b) of the Automobile Fuel Efficiency Act of 1980 amended section 502 of the Motor Vehicle Information and Cost Savings Act to extend the number of years over which manufacturers can carry back or forward credits from one to three years. These regulations are promulgated pursuant to the Efficiency Act's direction that implementing regulations be issued not later than 60 days after the date of enactment. The provisions in these regulations are in almost all respects identical to the provisions in the statute for passenger automobile credits.

**DATES:** These regulations are effective upon publication in the *Federal Register*.

### **FOR FURTHER INFORMATION CONTACT:**

Mr. Edward Glancy, Office of Chief Counsel,  
National Highway Traffic Safety  
Administration, 400 Seventh Street, S.W.,  
Washington, D.C. 20590 (202-426-2992)

**SUPPLEMENTARY INFORMATION:** Title V of the Motor Vehicle Information and Cost Savings Act establishes a program to improve automotive efficiency and conserve energy. Under that title, average (i.e., fleet) fuel economy standards are established for passenger automobiles and for light trucks. To discourage noncompliance with the standards and encourage exceeding the

standards, the title provides a system of penalties and credits. Penalties are assessed against manufacturers which fail to comply with applicable fuel economy standards. The penalties are assessed at a rate of \$5 per vehicle for each tenth of a mile-per-gallon by which the average fuel economy of a manufacturer's vehicles subject to a standard falls short of that standard. Monetary credits for exceeding the standards are earned at the same rate. This rate may be increased to up to \$10 per tenth of a mile per gallon if the agency makes certain findings about the existence of substantial energy savings resulting from the change and the absence of any resulting adverse impacts. See section 508(d) of the Act. Under the law as originally enacted, credits earned in one year may be used to offset civil penalties in the immediately prior year, and, if excess credits remain, in the immediately subsequent year.

The Automobile Fuel Efficiency Act of 1980, signed into law on October 12, 1980, amended title V to make several changes relating to the earning and application of credits. One amendment increased the number of years that credits may be carried backward or forward to offset penalties from one to three years. That and another amendment provided that a manufacturer which fails to meet a fuel economy standard in a particular year will not be regarded as having engaged in unlawful conduct or be subject to civil penalties under either of two circumstances. The first circumstance occurs if the manufacturer had previously earned sufficient credits to offset the penalty. Second, a manufacturer could achieve the same result if it submits to the agency an acceptable plan for earning in the subsequent three years sufficient credits to offset the penalty and if the manufacturer actually earns those credits.

While section 502 of the Act, as amended, sets forth detailed provisions for the three-year carry-back and carryforward of credits by passenger

automobile manufacturers, that section simply provides with respect to light trucks that credits for light truck manufacturers are to be earned and available to be taken into account "to the same extent and in the same manner" as provided for passenger automobile manufacturers. Section 5021(1)(2) requires that regulations governing light truck credits be promulgated not later than 60 days after the enactment of the Efficiency Act. Thus, the regulations must be issued by December 9, 1980.

With one exception discussed below, the provisions in these regulations are essentially identical to the provisions in the statute regarding passenger automobile credits. As in the case of passenger automobile credits, the light truck credits are available first to be applied to the three years immediately preceding the year in which they are earned. Any residual amount of credits is then available to be applied to the three model years immediately following the year in which the credits are earned. In any year in which a manufacturer believes that its average fuel economy will not meet an applicable light truck fuel economy standard, the manufacturer may submit a plan demonstrating that it will earn sufficient credits in the next three years which when taken into account would allow the manufacturer to meet that standard. The NHTSA Administrator will approve any such plan unless the Administrator finds that it is unlikely that the plan will result in the manufacturer's earning sufficient credits to allow the manufacturer to meet the standard for the model year involved.

The difference mentioned above between the provisions for passenger automobile credits and those for light truck credits arises from differences in the way in which the statute treats passenger automobiles and light trucks. Special provision must be made for light truck credits since light truck fuel economy standards may be set for all light trucks together or for classes of light trucks while class standards cannot be set for passenger automobiles. Title V and its history provide that credits may not be applied across classes of light trucks. That is, credits earned for one class of light trucks may not be applied to offset penalties incurred for another class of light trucks. (See Conference Report on the Energy Policy and Conservation Act, H.R. Rep. No. 94-700, 94th Cong., 1st Sess. 159 (1975).) The prohibition against

cross-class application of credits was previously discussed in a notice of interpretation published by the agency on November 8, 1979 (44 FR 64943).

This notice also reaffirms the policy set forth in the November 1979 notice of interpretation regarding transfer of credits by a manufacturer between a year in which the manufacturer complies with a single fuel economy standard applicable to all light trucks and a year in which it complies with several standards for different classes of light trucks. After seeking comments on the issue, the agency stated in its November 1979 notice that its policy would be to attempt to assure that credits are applied to offset civil penalties on the same types of light trucks as those which generated the credits. The notice stated that credits would be prorated according to the number of light trucks in the credit-earning class which would fall in the class subject to a civil penalty. The several examples given in that notice to illustrate the application of this procedure are still appropriate. Additional examples are set forth below to illustrate how this procedure will be applied in light of the manufacturers' choice in model years 1983-85 to comply with either a single standard for all light trucks or with optional separate standards for two-wheel drive (4x2) and four-wheel drive (4x4) light trucks.

For model years 1980-82, the agency established separate standards for 4x2 and 4x4 light trucks. Manufacturers are required to comply with those separate standards and do not have the choice of complying with a single standard. For model years 1983-85, however, the agency established a single combined standard for 4x2 and 4x4 light trucks, while giving manufacturers the choice of complying with optional separate standards.

If a manufacturer elects to comply with the optional separate standards for model year 1983, no prorating will be necessary since the classes for model years 1980-82 are identical to those in model years 1983-85 (except for limited product line manufacturers). Thus, credits earned by exceeding the 4x2 standard for model year 1982 could be fully applied against a failure to comply with the model year 1983 standard for those vehicles.

If a manufacturer elects to comply with the single, combined standard for 1983 and earns credits by exceeding that standard, application of those credits for failure to meet a standard in any of model years 1980-82 would require prorating.

The agency would prorate the model year 1983 credits according to the proportion of model year 1983 light trucks that are of the same type as the class whose standard was not met. Thus, if the manufacturer did not comply with the model year 1982 standard for 4x2 light trucks and 70 percent of the model year 1983 light trucks were 4x2, then 70 percent of the credits earned in model year 1983 could be applied against the penalty for that non-compliance.

Finally, if a manufacturer earns credits for exceeding any of the model year 1980-82 class standards and the manufacturer elects to comply with the single, combined standard for 1983, all credits earned by exceeding either or both of the separate standards for model years 1980-82 would be applicable to penalties incurred in model year 1983.

This notice is being issued without notice and comment for a variety of reasons. The requirement that the regulations be issued by December 9 made it impracticable in the agency's judgment to provide notice and opportunity for comment. The

agency also finds that making such provision is unnecessary since the regulations are in almost all respects identical to the statute. Finally, this rule is exempted as an interpretative rule from the statutory requirements for notice and comment.

This final rule is being made effective upon publication in the *Federal Register*. The usual requirement for a 30-day delay in the effective date is not applicable as this is an interpretative rule.

In consideration of the foregoing, Part 535 is added to 49 CFR Chapter V.

Issued on December 9, 1980.

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Joan Claybrook  
Administrator

45 FR 83233  
December 18, 1980



## PART 535—THREE-YEAR CARRYFORWARD AND CARRYBACK OF CREDITS FOR LIGHT TRUCKS

### Section

#### 535.1 Scope.

#### 535.2 Applicability.

#### 535.3 Definitions.

#### 535.4 3-year carryforward and carryback of credits.

AUTHORITY: Sec. 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); Sec. 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2001); Sec. 6, Pub. L. 96-425, \_\_\_\_\_ Stat. \_\_\_\_\_ (15 U.S.C. 2002); delegation of authority at 49 CFR 1.50.

#### § 535.1 Scope.

This part establishes requirements for governing 3-year carryforward and carryback of credits for manufacturers of light trucks.

#### § 535.2 Applicability.

This part applies to manufacturers of light trucks.

#### § 535.3 Definitions.

(a) *Statutory terms.* The terms "average fuel economy," "average fuel economy standard," "fuel economy," "manufacture," "manufacturer," and "model year" are used as defined in section 501 of the Act.

(b) *Other terms.* (1) "Act" means the Motor Vehicle Information and Cost Savings Act, as amended by Pub. L. 94-163 and 96-425.

(2) "Administrator" means the Administrator of the National Highway Traffic Safety Administration.

(3) The term "light truck" is used in accordance with the determinations in Parts 523 and 533 of this chapter.

(4) The term "class of light trucks" is used in accordance with the determinations in Part 533 of this chapter.

#### § 535.4 3-year carryforward and carryback of credits.

(a) For purposes of this part, credits under this section shall be considered to be available to any manufacturer upon the completion of the model year in which such credits are earned under paragraph (b) unless under paragraph (c) the credits are made available for use at a time prior to the model year in which earned.

(b) Whenever the average fuel economy for a class of light trucks manufactured by a manufacturer in a particular model year exceeds an applicable average fuel economy standard established in Part 533 of this chapter, such manufacturer shall be entitled to credit, calculated under paragraph (c), which—

(1) Shall be available to be taken into account with respect to the average fuel economy for the same class of light trucks of that manufacturer for any of the 3 consecutive model years immediately prior to the model year in which such manufacturer exceeds such applicable average fuel economy standard, and

(2) To the extent that such credit is not so taken into account pursuant to paragraph (b)(1) of this section, shall be available to be taken into account with respect to the average fuel economy standard.

(c)(1) At any time prior to the end of any model year, a manufacturer which has reason to believe that its average fuel economy for a class of light trucks will be below such applicable standard for the model year may submit a plan demonstrating that such manufacturer will earn sufficient credits under paragraph (b) within the next 3 model years which when taken into account would allow the manufacturer to meet that standard for the model year involved.

(2) Such credits shall be available for the model year involved subject to—

(i) the Administrator approving such plan; and

(ii) the manufacturer earning credits in accordance with such plan.

(3) The Administrator approves any such plan unless the Administrator finds that it is unlikely that the plan will result in the manufacturer earning sufficient credits to allow the manufacturer to meet the standard for the model year involved.

(4) The Administrator provides notice to any manufacturer in any case in which the average fuel economy of that manufacturer is below the applicable standard under Part 533 of this chapter, after taking into account credits available under paragraph (b)(1), and affords the manufacturer a reasonable period (of not less than 60 days) in which to submit a plan under this paragraph.

(d) The amount of credit to which a manufacturer is entitled under this section shall be equal to—

(1) the number of tenths of a mile per gallon by which the average fuel economy for a class of light trucks manufactured by such manufacturer in the model year in which the credit is earned pursuant to this section exceeds the applicable average fuel economy standard established in Part 533 of this Chapter, multiplied by

(2) the total number of light trucks in that class manufactured by such manufacturer during such model year.

(e) The Administrator takes credits into account for any model year on the basis of the number of tenths of a mile per gallon by which the manufacturer involved was below an applicable average fuel economy standard for a class of light trucks for the model year and the volume of that class of light trucks manufactured that model year by the manufacturer. Credits may not be applied between classes of light trucks, except as determined by the Administrator to account for changes made in the definitions of classes between model years. Credits once taken into account for any model year shall not thereafter be available for any other model year. Prior to taking any credit into account, the Administrator provides the manufacturer involved with written notice and reasonable opportunity to comment thereon.

**45 F.R. 83233  
December 18, 1980**



**PREAMBLE TO PART 537—AUTOMOTIVE FUEL ECONOMY REPORTS****(Docket No. FE 77-03; Notice 2)**

This rule establishes the format and content requirements for semiannual reports on fuel economy to be submitted to the National Highway Traffic Safety Administration by automobile manufacturers. Section 505 of the Motor Vehicle Information and Cost Savings Act requires manufacturers to submit semiannual reports on whether and how they will comply with applicable average fuel economy standards and requires the Secretary of Transportation to promulgate rules governing those reports. Section 505 also authorizes the Secretary to require such reports as are necessary to enable him to implement the fuel economy provisions of the Act. This rule is intended primarily to satisfy the requirement for semiannual compliance reports. The reports are also necessary to enable the agency to prepare certain aspects of a statutorily required annual report to Congress regarding the fuel economy standards.

Effective date: December 12, 1977.

For further information contact:

Steve Kratzke  
Office of Chief Counsel  
National Highway Traffic Safety  
Administration  
Washington, D.C. 20590  
202-426-2992

Supplementary information:

*Background information.*

The National Highway Traffic Safety Administration (NHTSA) is establishing the format and content requirements for the semiannual automotive fuel economy reports to be submitted by all manufacturers of automobiles beginning with the 1978 model year. The requirements for these reports will appear in a new Part 537,

added to NHTSA regulations in Title 49 of the Code of Federal Regulations by this action. This rule is issued pursuant to section 505(a) and (c) of Title V of the Motor Vehicle Information and Cost Savings Act, as amended ("the Act"). Authority to implement Title V was delegated by the Secretary of Transportation to the Administrator of NHTSA in a notice published on June 22, 1976, 41 FR 25015.

This final rule was preceded by a notice of proposed rulemaking ("NPRM") published April 11, 1977, at 42 FR 18867. The proposed rule would have required the manufacturers to report information on their automobiles produced in the current model year and on their automobiles that the manufacturers plan to produce in future model years, i.e., the five model years following the current model year. Most of the current model year information was intended to meet the requirement in section 505(a) for the manufacturers to submit semiannual compliance reports to the agency. The future model year data were intended to be used by the NHTSA primarily in establishing and amending future average fuel economy standards to meet the urgent national need for energy conservation and secondarily in evaluating future fuel economy standards for the purposes of preparing the annual reviews which section 502(a)(2) of the Act requires to be submitted to Congress. These data would offset the incompleteness of the manufacturers' voluntary submissions to the agency. A typical shortcoming is that the manufacturers tend to discuss their plans instead of their capabilities.

All comments to the NPRM were considered in developing this final rule. The major issues which have been raised, and their resolution, are described in the following discussion.

*Summary of major differences between the proposed and final rules.*

The portion of the proposed rules adopted by this notice is almost unchanged except for clarifying and narrowing changes. The major differences between the proposed and final rules are stated below.

(1) The 1978 pre-model year report is required to contain only the following information relating to passenger automobiles: the manufacturer's projected average fuel economy and views on the representativeness of the projection; model type fuel economy information; certain vehicle configuration technical information; and a general discussion of the manufacturer's marketing measures.

(2) The final rule does not adopt the proposed requirements for submitting current model year information regarding vehicle acceleration graphs, reduction of total drive ratio, impact of other Federal standards on fuel economy, impacts of efforts to comply with average fuel economy standards on automobile performance, material composition, additional compliance efforts, costs, gross income and market share, and engine system combinations and fuel systems.

(3) The final rule does not adopt the proposed requirements for submitting future model year information. Under those requirements, the manufacturer would have submitted information regarding projected average fuel economy, model type fuel economy and technological information, current fuel economy technology, future fuel economy technology, automobile technology and sales mix changes, weight reduction, reduction of total drive ratio, technological differences between passenger and nonpassenger automobiles, marketing measures, additional compliance efforts, impact of other Federal automobile standards on fuel economy, impacts of efforts to comply with average fuel economy standards on automobile performance, availability of capital, manufacturing costs, shifts in consumer demand, and gross income and market share.

(4) Supplementary reports are required only from manufacturers which previously reported in a semiannual report that they would comply with the applicable average fuel economy standards and then find that they will fail to comply.

As proposed, the rule also required supplementary reports to be filed by manufacturers which previously reported that they would not comply with the standards and then find that the extent of their noncompliance will be greater than that reported and by manufacturers whose average fuel economy was just slightly above the standards and declining.

(5) The reporting responsibility for multistage automobiles has been assigned exclusively to the incomplete automobile manufacturers. The NPRM had proposed that the incomplete automobile manufacturer would always be required to report on its incomplete automobiles. It would have also required a report to be filed by an intermediate or final-stage manufacturer that exceeded certain maximum specifications for those multistage automobiles.

*Scope and purpose of the reports.*

Section 505(a) of the Act provides as follows:

(1) Each manufacturer shall submit a report to the Secretary during the 30-day period preceding the beginning of each model year after model year 1977, and during the 30-day period beginning on the 180th day of each model year. Each such report shall contain (A) a statement as to whether such manufacturer will comply with average fuel economy standards under section 502 applicable to the model year for which such report is made; (B) a plan which describes the steps the manufacturer has taken or intends to take in order to comply with such standards; and (C) such other information as the Secretary may require.

(2) Whenever a manufacturer determines that a plan submitted under paragraph (1) which he stated was sufficient to insure compliance with applicable average fuel economy standards is not sufficient to insure such compliance, he shall submit a report to the Secretary containing a revised plan which specifies any additional measures which such manufacturer intends to take in order to comply with such standards, and a statement as to whether such revised plan is sufficient to insure such compliance.

(3) The Secretary shall prescribe rules setting forth the form and content of the reports required under paragraphs (1) and (2).

Section 505(c)(1) of the Act requires every manufacturer to establish and maintain such records, make such reports, conduct such tests, and provide such items and information as the NHTSA may, by rule, reasonably require to carry out its duties under Title V. Section 502(a)(2) requires the NHTSA to transmit to the Congress not later than January 15 of each year a review of the average fuel economy standards; section 502(a)(3), (b) and (c) requires the NHTSA to establish average fuel economy standards; and section 502(a)(4) and (f) gives the NHTSA the authority to amend average fuel economy standards.

Several commenters urged that the rule require reports with a limited scope and purpose. Volkswagen of America, Inc. ("Volkswagen"), commented that any manufacturer projecting compliance with the currently applicable average fuel economy standards should be exempted from providing any business or technological data in its reports. Chrysler Corporation ("Chrysler") and Ford Motor Company ("Ford") made essentially the same point, commenting that a manufacturer projecting compliance with the average fuel economy standards should only be required to report its projected average fuel economy and the fuel economy levels and projected production level for each model type.

These suggestions are inconsistent with the plain meaning of the language of section 505(a). Apparently, Chrysler and Ford believe that the fuel economy values and projected production levels for each base level constitute the manufacturer's plans for achieving compliance. The agency disagrees. The fuel economy information and projected production levels describe only the result the manufacturer hopes to achieve. Section 505(a)(1)(B) specifically requires that the report also include a description of the steps that the manufacturer has taken or will take to achieve that result. The "steps" that can be taken to improve average fuel economy and achieve compliance generally fall into two categories: (1) technology improvements and (2) shifts in the mix of models and options offered for sale. The

latter category includes the marketing measures undertaken to promote particular mix goals.

Further, the effective implementation of the fuel economy program requires that these semi-annual reports should also enable the Agency to monitor the degree of effort being made by the various manufacturers to improve their average fuel economy. This information is necessary for the agency and Congress to judge the sufficiency of the standards and statutory enforcement scheme, including the civil penalty formula, for obtaining improvements in average fuel economy. This information will also permit a comparison of the approaches being taken by the manufacturers to improve average fuel economy.

#### *Applicability.*

Mr. Andrew Pickens commented that the reporting requirements should only apply to manufacturers producing vehicles that use petroleum-based fuel.

This rule is applicable to only those manufacturers. Section 501(1) of the Act defines an "automobile" as "any 4-wheeled vehicle propelled by fuel . . ." Section 501(5) of the Act specifies:

The term "fuel" means gasoline and diesel oil. The Secretary may, by rule, include any other liquid fuel or any gaseous fuel within the meaning of the term "fuel" if he determines that such inclusion is consistent with the need of the Nation to conserve energy.

Since the NHTSA has not included any fuel other than gasoline or diesel oil within the definition of fuel, no change is necessary in the proposed applicability provision to accommodate Mr. Pickens' concern.

Three low-volume manufacturers, Rolls Royce Motors International ("Rolls Royce"), Avanti Motor Corporation ("Avanti"), and Checker Motors Corporation ("Checker"), all indicated that, because of their limited staffs and resources, and their small impact on industry average fuel economy, their reports should be limited in scope. A low-volume manufacturer is one that produces fewer than 10,000 passenger automobiles worldwide annually. See section 502(c) of the Act and 42 FR 38374, establishing 49 CFR 525. Only Checker made specific suggestions. It suggested that low-volume manufacturers not be required to provide data on marketing measures or addi-

tional compliance efforts, since low-volume manufacturers generally produce specialized vehicles with a limited number of vehicle configurations.

This agency has no authority to apply selectively the explicit reporting requirements of section 505(a)(1)(A) and (B); that is, (A) a statement whether that manufacturer will comply with the applicable average fuel economy standards and (B) that manufacturer's plan describing the steps it has taken or will take to comply with the standard. The statute expressly requires each manufacturer to comply with those requirements. Based on appropriate distinctions between different groups of manufacturers, NHTSA may selectively apply reporting requirements adopted under the authority of section 505(a)(1)(C) and (c).

As stated above, marketing measures are one of the steps that the manufacturer can take to improve its average fuel economy level. As such, they are required by section 505(a)(1)(B) to be described in each semiannual report filed under section 505(a). The agency notes further that the fewer configurations that a manufacturer has, the simpler that reporting the manufacturer's marketing plans will, in all likelihood, be.

The information on additional compliance efforts and costs is not required to be included in the reports of any manufacturer. Therefore, there is no need to consider whether low volume manufacturers should be afforded special treatment in providing such information.

The NPRM proposed to allocate reporting responsibilities among multistage automobile manufacturers depending upon which manufacturer of a multistage automobile had become the manufacturer for standards compliance purposes under Part 529. See 42 FR 38369, July 28, 1977, for the text of Part 529. There are three types of multistage automobile manufacturers. The incomplete automobile manufacturer is the manufacturer that assembles the frame and chassis structure, power train, steering system, suspension system, and braking system. An intermediate manufacturer is a manufacturer, other than the incomplete automobile manufacturer or final-stage manufacturer, which performs manufacturing operations on an incomplete automobile. The final-stage manufacturer is the manufacturer that completes the production of the multistage auto-

mobile except for addition of readily attachable components and minor finishing operations. Part 529 generally treats the incomplete automobile manufacturer as the manufacturer of the multistage automobile. However, in certain circumstances specified in Part 529, the intermediate or final-stage manufacturer can become the manufacturer for purposes of certain Title V requirements.

The NPRM proposed that when an intermediate or final-stage manufacturer became the manufacturer of a multistage automobile for standards compliance purposes, that manufacturer would share the reporting responsibilities with the incomplete automobile manufacturer. It was proposed further that the report by the intermediate or final-stage manufacturers be limited to the same information as low-volume manufacturers are required to provide. The reasoning behind the latter proposal was that, compared to the incomplete automobile manufacturer, the intermediate or final-stage manufacturer would have less knowledge about the specifications of the technological aspects of the incomplete automobile that most significantly affect fuel economy. Additionally, an intermediate or final-stage manufacturer would have a negligible engineering staff because of the small size and less technical nature of its manufacturing operation. Most of these manufacturers are small enough to be low volume manufacturers. No comments were received on this subject.

Upon further reflection, the NHTSA has determined that the reports filed by intermediate and final-stage manufacturers would be of very limited value to this agency. Exceeding the specifications would typically cause the fuel economy data and technological information in their reports to differ only slightly from the data and information already submitted for these automobiles by the incomplete automobile manufacturers.

Further, the reports would cover a very small number of automobiles, i.e., only those incomplete automobiles for which the intermediate and final-stage manufacturers had exceeded the maximum specifications. It is anticipated that these maximum specifications will very rarely be exceeded by the intermediate and final-stage manufacturers, since doing so would require these manufacturers to recertify the automobiles for compliance

with the Clean Air Act and redetermine the fuel economy of the automobiles. These manufacturers would also be required to determine whether exceeding the weight maximum affected the automobiles' compliance with the Federal Motor Vehicle Safety Standards. This testing would be a relatively expensive process, particularly considering that these manufacturers would not have their own testing facilities available.

The agency is also mindful that the burden that would be imposed on the intermediate and final-stage manufacturers if they were required to prepare these reports would be greater relative to that imposed on larger manufacturers. As stated above, these manufacturers have a minimal engineering staff, if any.

After a reconsideration of all these factors, the NHTSA has determined under section 501(9) of the Act and Part 529 that the incomplete automobile manufacturer of a multistage automobile will always be considered its manufacturer for purposes of the Act's reporting requirements. This rule has been changed to provide that intermediate and final-stage manufacturers are not required to file reports.

The agency's re-examination of the implementation of this rule by multistage manufacturers has also resulted in several changes in the rule to facilitate the reports by the incomplete automobile manufacturer. The data in § 537.7(e) is generally required to be provided by model type. However, the incomplete automobile manufacturer does not always know what the model type of the multistage automobile will be when completed. Accordingly, the incomplete automobile manufacturer is required to provide the fuel economy information in § 537.7(c) and (e) by base level, rather than by model type. Further, the technical information in § 537.7(e)(4) (xviii)-(xxii) and (e)(5) requires knowledge of how the automobile will be completed, and, therefore, is not required to be provided by incomplete automobile manufacturers with respect to multistage automobiles.

#### *Timing of the reports.*

Section 505(a)(1) of the Act specifies the time periods during which semiannual reports for a model year must be submitted. The first report, called the "pre-model year report" in this rule,

must be submitted during the 30-day period immediately preceding the model year. The second report, the "mid-model year report," must be submitted during the 30-day period beginning on the 180th day of the model year.

Ford commented that the EPA has designated the date on which comparable class fuel economy ranges become available as the beginning of the model year in a notice published November 10, 1976, 41 FR 49752, at 49756. Ford did not clearly indicate the basis for its belief that that notice, which dealt with fuel economy labeling requirements, contained any designation of the model year. Nowhere in the preamble to that notice did the EPA give any indication that it was making a determination of the model year.

Further, the language of the rule itself shows that the EPA was not making any determination of the model year. 40 CFR § 600.314(d)(1) reads: "The range will be made available on a date that coincides as closely as possible to the date of the general model year introduction for the industry." Rather than indicating that the beginning of the model year occurs on the date on which the EPA announces the comparable class ranges, this language indicates that the EPA recognized that the beginning of the model year is not dependent on and does not coincide with the announcement of the ranges. The EPA merely stated that the two dates should occur as close together as possible. After a review of EPA's November 10 notice, this agency has concluded that nowhere therein did the EPA make any determination of the model year. The EPA concurs with that conclusion.

Volvo of America, Inc. ("Volvo"), stated that its interpretation of the term "model year" as applied to foreign manufacturers was that the model year begins on the date when the first vehicle of the current model year is publicly offered for sale in the United States.

Section 501(12) of the Act defines "model year" as a manufacturer's annual production period which includes January 1 of the calendar year, and gives the EPA Administrator the authority to determine the manufacturer's annual production period. If a manufacturer has no annual production period or if the EPA does not determine when that period occurs, the manufacturer's model year is the calendar year.

To date, no determination of the "model year" has been made specifically for the purposes of section 505(a). In the rule specifying the 1978 model year fuel economy testing and calculation procedures (41 FR 38674, September 10, 1976), the EPA stated that the 1978 model year for domestic manufacturers would begin no earlier than August, 1977. This determination, however, was made without regard to section 505(a). Rather, it was made to provide all parties with 12 months advance notice of the applicable testing and calculation procedures, in accordance with the provisions of section 503(d) of the Act.

Based on its consultation with the EPA, this agency has come to the following conclusions in which EPA concurs. Since the EPA has not yet determined any annual production period for domestic or foreign automobile manufacturers applicable to section 505(a), the manufacturers have no annual production period for the purposes of section 505(a). Accordingly, under the terms of section 501(12), the section 505(a) model year for these manufacturers is the calendar year. Therefore, the pre-model year reports for 1978 must be submitted to this agency not earlier than December 2, 1977, and not later than December 31, 1977.

The use of the calendar year as the model year for the manufacturers puts both commenting manufacturers in a position at least as favorable as the ones they had requested. Ford will now have a period in which to prepare its 1978 pre-model year report that is several months longer than the one it would have had if its comment had been adopted. Since Volvo has generally introduced its new automobiles on January 1, this rule will, in effect, treat Volvo as it had requested.

The EPA has indicated to this agency that it will take appropriate action under Title V regarding the definition of model year to be used with respect to the submission of reports for the 1979 and subsequent model years.

This agency recognizes that some confusion may result from the use of one definition of model year to determine when the reports must be submitted and another definition to determine which automobiles are to be discussed in the reports. It should be emphasized that this determination of the model year is applicable only to the timing

provisions of section 505(a) of the Act. The determination is made only to inform the manufacturers and the public precisely when these semiannual fuel economy reports must be submitted.

This determination does not mean that the manufacturers' reports must contain information on every automobile produced between January 1 and December 31 of each year. Section 505 specifies that the reports must indicate whether the manufacturer will comply with the average fuel economy standards applicable under section 502 to the model year for which the report is made, and the manufacturer's plan for achieving that compliance. Thus, the reports are to contain information only on automobiles produced during that model year. To determine the beginning of the model year to which a standard applies, the manufacturers must look to the relevant EPA determination of the model year for the purposes of section 502. Under the relevant EPA determination, the 1978 model year for the domestic manufacturers will run from approximately August 1977 to July 1978.

Based on its assumption that the pre-model year reports might be due in early September, Ford expressed concern that the NPRM would require it to submit one preliminary fuel economy average in its pre-model year report to the NHTSA and a different, second preliminary average to the EPA a short time later. The EPA currently requires all manufacturers to submit a preliminary average fuel economy calculation to that agency not later than 10 days after the manufacturer's public introduction date. 40 CFR 600.506-78. Ford stated that the submission of two different averages would be burdensome and that the first average would be less representative than the second. In the case of domestic manufacturers, the problem of being required to submit two different preliminary averages is obviated by the discussion above regarding the beginning of a model year for reporting purposes. Instead of having to submit their pre-model year reports perhaps several weeks before the submission of their preliminary average to the EPA, the domestic manufacturers will not have to submit those reports until several months after that submission to the EPA. There will not be any significant burden since the aver-

age submitted in the pre-model year report will be the same as the preliminary average submitted to the EPA, except as modified to reflect running changes and new model introductions made since the submission of that average to the EPA. Based on this agency's participation in EPA's 1977 model year pilot program for calculating the manufacturers' average fuel economies, NHTSA believes that all four of the major domestic manufacturers will have programmed computers to calculate their average fuel economy levels for 1978 and later model years, so that these manufacturers can quickly and at little cost determine the effects of changes in fuel economy or production data on their overall average.

Foreign manufacturers might still face the problem of being required to submit two separate calculations of their preliminary average fuel economy. If a manufacturer had its introduction date on January 1, as many foreign manufacturers do, the manufacturer would not be required to submit its preliminary average fuel economy calculation to the EPA until January 11. However, that manufacturer would be required to submit a preliminary average fuel economy in its report to the NHTSA, due not later than December 31. This agency would thus be faced with the prospect of receiving a preliminary average less representative than the one to be subsequently submitted to EPA.

To avoid this problem, this rule has been changed from what was proposed in the NPRM. Under this rule, a manufacturer is not required to include the fuel economy data required for the pre-model year report by § 537.7(b), (c)(1) and (2), and (c)(4) (xiv)-(xvi) and (xxiv), if that report is due to be submitted before the fifth day after the date by which the manufacturer is required to submit the preliminary determination of average fuel economy to the EPA under 40 CFR 600.506. Any manufacturer taking advantage of this opportunity is required to submit a supplementary report to this agency not later than the fifth day after the date by which that manufacturer must submit the preliminary determination. This supplementary report must contain all the information the manufacturer omitted from its semiannual report, pursuant to the above provision, and any revisions of the information previously submitted in the semi-

annual report as are necessary to reflect this new information.

#### *Semiannual reports.*

The short time remaining for the manufacturers to submit their 1978 pre-model year reports has necessitated a substantial reduction of the information required in that report. Under this rule, the report would cover passenger automobiles only. With respect to those automobiles, the manufacturer would provide its projected average fuel economy and views on the representativeness of the projection, its model type fuel economy information, certain vehicle configuration technical information, and a general discussion of the manufacturer's marketing measures. None of this information requires any new analytical work to prepare and, thus, should be readily available to the manufacturers for inclusion in a report to this agency.

Further, to alleviate the time pressures on the manufacturers and ensure the submission of full reports, the agency will not take enforcement action on timeliness grounds against any manufacturer which submits its pre-model year report by January 31, 1978.

Many commenters complained that the reporting requirements proposed in the NPRM would impose unreasonable and excessive additional testing costs. These complaints were primarily applicable to the proposed future model year reporting requirements. To the extent that the complaints were directed to the current model year reporting requirements, they appear to apply largely to items not adopted in this rule.

In the NPRM, the agency discussed its consideration of possible ways of avoiding the imposition of any new testing costs, and requested comments on the desirability of permitting a manufacturer to submit responses that were an estimate or a set or range of alternatives. To avoid abuse of that opportunity and ensure the usefulness of the estimates, the agency further proposed that any manufacturer submitting estimates or alternatives would be required to state the basis for each estimate or alternative, the major uncertainties associated with it, and the most likely value in the case of an estimate and the most likely alternative in the case of a set or range of alternatives. Despite the request for

comments on this proposed method, only one manufacturer addressed this issue. Volvo stated that permitting estimates would give the NHTSA more representative data, and make the manufacturer's task less burdensome.

To place the smallest burden on the industry consistent with the NHTSA's need for information, this rule permits manufacturers to submit estimates in response to requirements for data on marketing. A manufacturer may not provide estimates in response to the requirement for fuel economy data or technical specifications data. One of the primary purposes of the fuel economy data is to calculate average fuel economy. Gross estimates of fuel economy are unsuitable for making such an important and sensitive calculation. The rule accordingly requires the manufacturer to submit fuel economy values which have been approved by the EPA for specified vehicle configurations, if values have been approved. If a value has not been approved for a configuration, the manufacturer must submit any available unapproved fuel economy value developed through the use of EPA's test procedures or through analytical methods approved by the EPA. If none of the above types of values are available, the manufacturer is required to submit a fuel economy value based on tests or analyses comparable to the tests or analyses required by the EPA, and a description of the tests or analyses conducted by the manufacturer. The technical specifications can be easily determined at little or no expense. Further, almost all of that information must already be generated for purposes other than this rule.

#### *Projected average fuel economy.*

Commenters generally agreed that this was a necessary piece of information. As explained in the preamble to the NPRM, the NHTSA believes that submission of this information would be equivalent to a statement whether the manufacturer would comply with the applicable average fuel economy standards, as required to be included in the reports by section 505(a)(1)(A) of the Act.

Ford challenged the inclusion of a requirement that manufacturers state whether their projected average fuel economy is a sufficiently accurate representation for the purposes of assessing pen-

alties and awarding credits under the Act. If it were not a sufficiently representative figure, the manufacturer would be required to explain how and why the insufficiency resulted, and what additional fuel economy data is necessary to correct the insufficiency. The need, if any, might be to develop fuel economy values for vehicle configurations for which no values are required to be provided. The manufacturer must also state any plans that it has to undertake the testing or analysis necessary to develop the data and to submit it to EPA under 40 CFR 600.509-78. Section 600.509-78 permits manufacturers to supplement voluntarily the fuel economy data that EPA requires from each manufacturer. As noted by EPA in its notice establishing section 600.509-78, that section's purpose is to accommodate the manufacturer who does not believe that the testing required by EPA provides a reasonable basis for making compliance determinations (41 FR 38674, at 38678; September 10, 1976).

The disclosure requirement is included in this rule because it is essential for the efficient functioning of the fuel economy program. It is in the interests of both the government and the industry that the manufacturers' calculated average fuel economies must be as truly representative of the manufacturers' average fuel economies as practicable. If the calculated average are too low, the manufacturers could have an undue financial burden imposed on them in the form of large, unwarranted penalties. To avoid an unwarranted penalty, a manufacturer might undertake costly and unwarranted vehicle modifications or unnecessary production shifts. If, on the other hand, the calculated averages are too high, the nation would be deprived of the total fuel savings envisioned by the Act and the manufacturers would be given an undue credit.

The EPA was aware of the importance of ensuring representative calculated average fuel economies and discussed the issue at length in its notice establishing the fuel economy testing and calculation procedures (41 FR 38674, at 38676, September 10, 1976). The disclosure requirement in this rule will supplement the EPA's efforts in 40 CFR 600.509-78 to ensure the representativeness of the calculated averages.



Requiring manufacturers to disclose deficiencies which they believe exist in the projected average and to disclose their plans for generating additional fuel economy data would enable the government to avoid duplicating the manufacturers' efforts to generate that data and the waste of public resources resulting from such duplication. It would also inform the government about the extent to which the manufacturers were not going to generate the additional data. The government could then decide whether to undertake any of the testing and analysis itself. Timing would be critical to the ability of the government to undertake any additional testing. The probability of the government's being able to locate readily the precise vehicle configurations needed will steadily decline as the end of a model year approaches. Further, the demand on the government's test facilities for emissions and fuel economy testing purposes requires that the government have some flexibility in scheduling any additional testing.

By requiring that apparent deficiencies in the projected average fuel economy be disclosed, the reporting regulation would aid in ensuring the steady and orderly implementation of the fuel economy program by resolving problems before the end of the model year when corrective actions might still be taken. The entire fuel economy program, which constitutes the primary element of the national effort to conserve gasoline, might be disrupted if deficiencies exist and are not revealed until it is too late to take any corrective action.

The establishment of an orderly procedure for identifying and reporting apparent deficiencies in projected average fuel economies should also aid in promoting public confidence in the fuel economy program. The success of the program depends in part on the faith of the public and the manufacturers in the fuel economy averages calculated for the manufacturers.

The burden imposed on the manufacturers by the disclosure requirement should be fairly small. If a manufacturer has not identified any deficiencies in its projected average fuel economy, it simply reports that fact. If, on the other hand, information available to the manufacturer leads it to believe that there are deficiencies, it simply

reports the nature and cause of the deficiencies as well as any plans for reducing or correcting them.

After considering the benefits to be gained from the disclosure requirement and the minimal resulting burdens, the agency has determined that the requirement is both a necessary and a reasonable means for ensuring the smooth functioning of the fuel economy program.

Ford characterized this requirement as "an unfortunate effort to force manufacturers to waive their right to challenge the manner in which EPA, in consultation with DOT, developed fuel economy testing procedures and calculations under section 503 of the Act." The agency believes that Ford may not have understood the requirement and its purpose fully.

This disclosure requirement does not require that any manufacturer waive the opportunity to make such a challenge. A waiver is "the voluntary and intentional relinquishment of a known right, claim, or privilege." 28 Am. Jur. *Estoppel and Waiver* §154 (1966). Without considering the other elements of a waiver, it may be seen from the absence of any relinquishment that no waiver is imposed by this requirement. If a manufacturer states and explains its beliefs regarding the representativeness of the projected average, it is not thereby precluded from restating those beliefs at a later time, such as when the final average is calculated. Alternatively, if a manufacturer states in one of its reports that, based on current information and analyses, there do not appear to be any deficiencies in the projection, the manufacturer is not precluded from subsequently stating that new information and analysis have revealed previously undiscovered deficiencies.

#### *Model type fuel economy and technical information.*

To provide the agency with the basis for a manufacturer's projected average fuel economy, the rule requires the manufacturer to provide fuel economy values for each model type of its automobiles and describe the fuel economy related technical information and specifications of each vehicle configuration on which the model type fuel economy values were based.

Ford commented that it was unlikely that the NHTSA could make use of the approach angle, departure angle, and breakover angle for all the passenger cars sold by Ford. These data, and the required axle clearance, minimum running clearance, and any other features which the manufacturer believes make an automobile capable of off-highway operation, were included in the NPRM to permit the NHTSA to determine whether the classification scheme of Part 523 was adequately differentiating automobiles capable of off-highway operation from other automobiles. The NHTSA now believes this purpose will be adequately served if the features that make an automobile capable of off-highway operation are provided only with respect to those automobiles claimed to be capable of off-highway operation as determined under Part 523. If the category "automobiles capable of off-highway operation" fails to include automobiles that the manufacturers believe should be included, the manufacturers will presumably inform the NHTSA of that belief.

Both Ford and Chrysler indicated that this fuel economy information should be required by base level, rather than model type. Neither manufacturer explained why the information should be provided in that fashion. Further, neither indicated that providing the information by model type would pose any significant problem for them. EPA procedures that the manufacturers are to follow to calculate their preliminary average fuel economies provide for determining fuel economy values for vehicle configurations, then base levels, and finally model types. The model type fuel economies are then used to calculate the average fuel economy. Conversion of base level fuel economies to model type fuel economies requires that the manufacturers simply follow the calculation procedure in 40 CFR 600.207-77(b). The manufacturers must perform these calculations in any event at essentially the same time to satisfy the EPA requirement for the preliminary average. NHTSA could not calculate the average since it would lack the necessary sales data to make the conversion from base level values to model type values. The agency has decided, therefore, to require the fuel economy information by model type.

Chrysler objected to providing the road load power at 50 miles per hour, stating that this would dramatically increase their testing costs. This requirement was not intended to impose any additional testing costs. To clarify that intention, the requirement has been reworded to provide that road load power information must be provided for an automobile only if a manufacturer has determined, for whatever purpose, that it differs from the road load setting prescribed for that automobile in 40 CFR 86.177-11(d). There is no requirement that the setting be determined for the purposes of preparing the fuel economy reports.

Both Chrysler and Toyota Motor Sales, U.S.A., Inc. ("Toyota"), objected to the proposed requirement that each manufacturer provide a graph of acceleration and velocity versus time from 0 to 60 miles per hour for each configuration. Toyota indicated that it does not plan models according to this index, and that this requirement would impose additional testing. Chrysler concurred in this latter statement.

This information was proposed to be required to show any effects of complying with increasingly more stringent fuel economy standards on the acceleration capabilities of the manufacturer's automobiles over a wide range of speeds. The NHTSA expects that these effects will be felt more at some speed ranges than at others. However, the NHTSA is uncertain of how accurately this acceleration data could be provided without any additional acceleration testing. If manufacturers like Toyota perform limited acceleration testing, e.g., test the acceleration of only certain models, those manufacturers might need to perform tests on the untested models so that they would have a reliable basis for estimating the acceleration for all the configurations listed in the report. To avoid imposing any additional testing, the agency has deleted the requirement for acceleration and velocity data from this rule.

#### *Automobile technology and sales mix changes.*

Avanti and Checker stated that they would be dependent upon their engine suppliers for information regarding changes in the technology used in their engines. The agency believes that by the time the pre-model year report is filed for a model year by one of these manufacturers, the

manufacturer should have been able to determine for itself or learn from the suppliers the differences in specifications between their engines for the current model year and those for previous model years. The agency expects the suppliers to cooperate to the extent necessary to enable these low-volume manufacturers to provide the required data.

Both Rolls Royce and Toyota indicated that they could not improve their fuel economy by changing the sales mix. However, the combined fuel economy of Toyota's subcompacts for the 1977 model year ranges between 24 and 41 miles per gallon, according to the Second Edition of the 1977 EPA FEA Gas Mileage Guide. Shifts in its mix could enable Toyota to achieve a higher or lower average fuel economy. If a manufacturer produces only one model type, and that model type is in the same inertia weight class in both the current model year and immediately preceding model year, the manufacturer would have no sales mix changes to report. No burden is imposed on that manufacturer.

#### *Marketing measures.*

The NPRM contained a proposal that the manufacturer be required to state and describe its marketing measures for each model type of its automobiles. The rationale for requiring a description not only of marketing measures designed to aid a manufacturer in improving its average fuel economy, but also of those measures that would tend to have the opposite effect, was to provide the agency with the full context in which to evaluate the former set of measures.

As noted above, many of the manufacturers commented that the reports should not be required to include marketing information. This comment could not be adopted because section 505(a) requires inclusion of that information.

Toyota commented that it makes no special marketing efforts to improve its average fuel economy, since it produces only subcompacts, which Toyota characterized as very fuel efficient. This agency notes that the marketing efforts of certain manufacturers will not affect whether they achieve compliance with the fuel economy standards. If the lowest fuel economy for any model type produced by a manufacturer for the

current model year equals or exceeds the applicable average fuel economy standard, the manufacturer's marketing efforts have no bearing on compliance and are not one of the steps the manufacturer has taken to achieve compliance. Such manufacturer cannot fail to comply with the standard, regardless of its marketing efforts, since any production mix will comply. Therefore, a manufacturer whose sales mix includes only models with fuel economy levels equal to or greater than the applicable average fuel economy standard is not required to include in its reports for that model year any discussion of its marketing measures.

Further, the agency has decided to reduce substantially the extent to which manufacturers must report marketing measures that will not aid the manufacturer in improving its average fuel economy. The final rule does not require a general description of all of the manufacturer's advertising, pricing, and dealer incentive programs.

The proposed requirement that the manufacturer describe how its use of advertising, pricing, and dealer incentives was designed to aid the manufacturer in improving its average fuel economy is adopted in this rule substantially as proposed in the NPRM. Both the pre- and mid-model year reports are required to include a description of the manufacturer's dealer incentive programs that will be implemented and a description of the manufacturer's advertising and pricing that will tend to aid the manufacturer in improving its average fuel economy during the current model year. Advertising and pricing programs that will tend to aid the manufacturer in improving its average fuel economy include all programs to promote the sales of model types whose average fuel economy equals or exceeds the applicable standards, and any programs to promote the sales of a model type below the standard in lieu of sales of a model type further below the standard. As a quantification of the manufacturer's advertising efforts, the final rule requires that each report state the amount to be spent to advertise each carline, with additional information to be provided regarding model types, if available. Additionally, the mid-model year reports must include a discussion of the marketing efforts actually made by the manufac-

turer during the first half of the model year. No retrospective reporting of marketing efforts made during the second half of the model year is required by this rule. Accordingly, this agency is considering further rulemaking to require the reporting of marketing efforts made during the second half of a model year in the pre-model year report for the following model year.

AMC was the only commenter that agreed that marketing information should be required in the report, and indicated its willingness to provide this information.

The NPRM proposed that the marketing information be provided by model type. However, Ford and Chrysler both indicated that the marketing information was not available by model type. Neither indicated how it was available, however. Most advertising appears to be by car line, with perhaps one model type or vehicle configuration being highlighted. Based on this pattern, the NHTSA believes that the information is available by car line to all manufacturers. Therefore, this rule has been changed to provide that the marketing information be provided by car line and, when available, by model type too.

Concerns were expressed by two manufacturers about their ability to provide the marketing data within the period specified in the NPRM. Chrysler stated that it would be very difficult to provide this information before the start of the model year, since the marketing measures change during the model year in response to the economic conditions and the competitive environment. Further, according to Chrysler, the data is not available in detail at the time required. Ford agreed with this assertion, and indicated that dealer incentives are approved during the model year.

None of these comments took into consideration the provision in the proposal for submitting estimates when precise answers cannot be given. Under this provision, which has been adopted in this rule, manufacturers may submit information about their planned advertising as estimates or as sets or ranges of alternatives. If no incentives are planned, then there would be none to report. Thus, these manufacturers should not encounter the types of problems they suggested.

Chrysler, Ford, and General Motors all indicated that if their marketing plans were disclosed, there would be severe anti-competitive effects. In view of this concern, this agency assumes that the manufacturers will request confidential treatment of this information. The NHTSA procedures for dealing with material claimed to be confidential are discussed below, in the section of this preamble on confidential information.

General Motors suggested that the NHTSA had incorrectly assumed that marketing measures control consumer demand. The NHTSA made no such assumption. The agency does believe that marketing measures can influence the consumer demand. The substantial advertising budgets, rebate programs and dealer incentives of the manufacturers indicate that they share this belief.

*Reduction of (CID) (N/V), Impact of other Federal standards on fuel economy, Impacts of efforts to comply with average fuel economy standards on automobile performance, Material composition, and Engine system combinations and fuel systems.*

These five items were proposed to be included in the current model year section of the proposed report primarily to verify predictions made by the manufacturers in the future model year section of previously submitted semiannual reports. Since the manufacturers are not required by this rule to provide future model year information, this current model year information would not serve its primary intended purpose, and the requirement for its submission is therefore deleted.

*Additional compliance efforts.* This item was proposed to be included in the reports to aid this agency in determining the feasibility of additional compliance efforts by a manufacturer projecting noncompliance with a standard. Section 505(a) does not require inclusion of this requirement in the rule. Upon a re-examination of this requirement, the NHTSA has determined that it could meet its information need better by exercising its authority under section 505(c) of the Act to send out a special order requiring specific, detailed information from a manufacturer which projects noncompliance. Accordingly, this rule does not include the requirement for this item.

*Costs and Gross income and market share.* Data on these subjects were proposed to be required in the reports so that the NHTSA could compare the effectiveness and costs of the different manufacturers' compliance strategies and assess the impacts of complying with the average fuel economy standards on the manufacturers individually and as an industry and on consumers. Requirements for these data have been deleted in view of the agency's decision to limit the scope of the report to compliance related purposes. When necessary to obtain information to enable NHTSA to make the assessments of the impacts of compliance on the manufacturers and consumers, it can use special orders.

*Future model year data.* The NPRM proposed that the manufacturers be required to include in their semiannual reports, beginning with the 1978 model year, information concerning their ability to improve future average fuel economy and the costs and other impacts that would result from making improvements. Ford commented that the proposal for reporting future model year information was very extensive and presented unique and troublesome problems for the industry in view of the scope of the information required, the ability of the industry to comply with the reporting requirements, and the potential effects of the reporting requirements on competition within the industry. Ford also questioned the usefulness of the information since much of the information is, according to that company, subject to change. To allow time for a more thorough consideration of these questions, Ford requested that the NHTSA publish a final rule on current model year information, and treat the section of the NPRM on future model year data as an advance notice of proposed rulemaking. Ford suggested that a new 60-day comment period on the future model year data be allowed, followed by a public hearing. Since section 505(a) does not require future model year reporting, Ford believes that NHTSA has no statutory deadline for promulgation of the future model year reporting requirement. AMC expressed substantially the same views.

Other manufacturers made the same point, although they expressed it in terms of the scope of the proposal and the purposes to be served by the

information. Chrysler stated that the scope of the NPRM was excessive, and that the reporting requirements for current and future model years should be considered separately. According to Chrysler, the reporting rule should be used only to permit the NHTSA to determine whether the manufacturer will comply with the applicable average fuel economy standards. Chrysler also suggested that special orders be used to obtain any needed future model year information.

Rolls Royce, AMC, and British Leyland Motors Inc. ("British Leyland") all indicated that the scope of the proposed report was so broad that members of their engineering staffs would have to be withdrawn from their fuel economy improvement programs to collect and analyze the data required to comply with the proposed reporting requirements. To avoid this situation, British Leyland suggested that the purpose of the reports should be limited to obtaining data to evaluate the manufacturers' plans for compliance. Toyota and Peugeot also commented that the purpose of the reports should be limited to obtaining information sufficient to evaluate the manufacturers' plans for compliance.

With respect to the leadtime allowed, General Motors recommended that future model year data not be required to be reported in the 1978 model year, because of the short leadtime. Chrysler indicated that it would need at least twelve months after publication of the final rule to submit all the future model year data proposed in the NPRM. Volvo, on the other hand, indicated that it could thoroughly prepare this information in time for submission with the 1978 mid-model year report.

After considering these comments, the NHTSA has decided not to include any requirements for future model year information in the final rule. The agency agrees that the timing on establishing the reporting requirements for current model year information is more critical, given the provisions of section 505(a) of the Act, than the timing on establishing requirements for future model year information. The agency will continue to consider the various options open to it for obtaining future model year information, including issuing a new proposal or special orders.

*Supplementary reports.* Section 505(a)(2) requires that if a manufacturer indicated in its recent semiannual report that it would comply with a fuel economy standard and then determines that its compliance plan is not sufficient to enable it to achieve compliance, the manufacturer must submit a revised plan specifying any additional measures that it will take to achieve compliance. Information on compliance plans and potential noncompliances would enable the agency to determine whether the manufacturers were making good faith efforts to comply with the standards. Using its authority under section 505(a) and (c), the agency intentionally went beyond this requirement in the NPRM.

The first case in which a supplementary report was proposed to be required was when a manufacturer's projected average fuel economy had decreased by 0.1 mile per gallon or more from its most recently reported average, and the resultant average was below the standard or less than 0.4 miles per gallon above the standard. This requirement was intended to alert this agency either that a manufacturer that had projected compliance might be in imminent danger of non-compliance, or that a manufacturer that had projected noncompliance had experienced a further decrease in its average fuel economy. The purpose of this requirement was to provide this agency with information explaining the declining average fuel economy and the steps that the manufacturer intended to take to minimize the decrease.

Both Ford and Chrysler objected to this proposal as burdensome and stated that it was their interpretation of section 505(a)(2) that supplementary reports were required only when a manufacturer's plans, as reported to the NHTSA, were no longer sufficient to ensure compliance with an applicable average fuel economy standard.

After a reconsideration of the proposed requirements and the comments received, the NHTSA has determined to narrow the rule so that it requires a supplementary report to be filed only in the circumstances specified in section 505(a)(2). As in the case of the future model year information, the agency desires to consider further the value and burden of requiring this information which is outside the nominal scope of section 502(a)(2). The NHTSA will monitor

the reports filed under the standards, and consider whether supplemental reporting in addition to the minimum required by section 502(a)(2) of the Act should be required. Accordingly, this rule requires a supplementary report to be filed only if the manufacturer's average fuel economy for a particular model year in its most recent semi-annual report was equal to or greater than an applicable average fuel economy standard, and the manufacturer subsequently projects that its average fuel economy for that model year has fallen below that standard.

Ford and Chrysler expressed the fear that the NPRM would require overly frequent supplemental reporting. To reduce the frequency of supplemental reports, Ford and Chrysler suggested that a greater decrease than 0.1 mile per gallon be required to trigger the necessity for a supplementary report. No threshold is specified in this rule because none is necessary to accommodate the manufacturers' concerns about frequent supplementary reports. Under this rule, a manufacturer is not required to file more than one supplementary report to each semiannual report as a result of lower average fuel economy projections.

The second case in which a supplementary report was proposed to be required in the NPRM was when a manufacturer's statement concerning the representativeness of its average fuel economy is no longer an accurate statement of the manufacturer's views regarding that matter. This supplementary reporting requirement was intended to ensure that a manufacturer promptly raised and explained any concerns about the representativeness of the average and the possible need for additional fuel economy values.

Ford objected to this proposed supplementary reporting requirement based on Ford's interpretation that the NPRM would have required a supplementary report to be filed "whenever any statement with respect to the projected average fuel economy becomes partially or wholly inaccurate or incomplete." Ford stated that this would require daily reporting, and that the standard was so subjective as to be meaningless.

Ford apparently misinterpreted the proposed requirement. The NPRM proposed that a supplementary report be required when a manufac-

turer determined that its previous statements under § 537.7(b)(3) regarding the representativeness of an average do not accurately reflect its current views. This requirement is narrower than Ford understood it to be. A manufacturer's views about the representativeness will presumably change only after some analysis of these procedures by the manufacturers. Even if a manufacturer were to perform a new analysis every day, it seems implausible that each new analysis would yield a different result than the immediately preceding analysis. Since Ford did not explain why different results were likely, the NHTSA assumes that Ford's statement about daily reporting was based on some misinterpretation of this section.

In response to Ford's comment that the standard was too subjective, the language in the rule has been clarified. The rule requires a supplementary report to be filed when a manufacturer determines that its projected average fuel economy as reported to the NHTSA is less representative than the manufacturer previously reported it to be.

Supplementary information on the manufacturer's views about the representativeness of its projected average fuel economy is needed so that the NHTSA will be promptly informed about the possible need to determine fuel economy values for additional base levels or vehicle configurations. The information would be used to promote efficient, non-duplicative use of resources and to avoid the disruption of the fuel economy program, as explained above in the section of this preamble on semiannual reports. This supplementary reporting requirement imposes no burden on the manufacturer other than to record and submit the results of analyses it has already made.

Mercedes commented that manufacturers which produce for sale in the United States not more than 100,000 automobiles in a given model year should not be required to comply with the supplementary reporting requirements. The NHTSA has no authority to exempt such manufacturers from submitting a supplementary report when it no longer projects compliance since those supplementary reports are required from all manufacturers by section 502(a)(2). The agency continues to believe that supplementary reporting regarding the representativeness of a manufac-

turer's projected average fuel economy should be required from all manufacturers. It is important to ensure the compliance of all manufacturers, large and small, with the average fuel economy standards. Further, this reporting requirement should impose no significant burden on even the smallest of manufacturers. If a manufacturer has conducted some analysis and concludes that its average is not sufficiently representative, it simply reports that conclusion and the reasons therefor. Otherwise, the manufacturer submits no supplementary information regarding representativeness.

Toyota commented that the requirement that supplementary reports be filed within 30 days of the date when the manufacturer determines or should have determined that a supplementary report is required is too short a period for foreign manufacturers, particularly considering the time losses inherent in the language differences and communication problems confronting those manufacturers in non-English speaking countries. Toyota did not, however, suggest an alternative period. This agency has determined Toyota's comments have some merit and that a slightly longer time period to file the supplementary reports should be permitted. Accordingly, this rule requires the supplementary report to be received by the NHTSA not later than 45 days from the date on which the manufacturer determined, or with reasonable diligence could have determined, that a supplementary report was required. This 45-day period should be ample time to generate the material, draft and translate the report, and send it air mail to this agency.

None of the comments received by this agency were directed to the proposed content of the supplementary reports. This rule essentially follows the proposal in requiring that the manufacturer state the revised average fuel economy projection or the previously unreported element of unrepresentativeness of the projected average fuel economy, as appropriate, explain the new projection or element of representativeness, and show any changes to the previously submitted report which must be made in light of this newly reported information. To clarify the types of revisions that must be included in the supplementary reports, this rule specifies that the manufacturer no longer projecting compliance shall

include any additional technological improvements, sales mix changes, and marketing efforts it intends to make. If the manufacturer does not intend to attempt to take additional steps to achieve compliance, it must describe the steps it could take under § 537.7 (f), relating to additional compliance efforts. In the case of a manufacturer that no longer believes its average fuel economy figure is as representative as it previously stated, the rule requires a statement of the reasons for the insufficient representativeness, the additional testing or analysis necessary to eliminate the insufficiency, and any plans of the manufacturer to undertake the additional testing or analysis.

*Treatment of information claimed to be confidential business information.* The NPRM set out format and content requirements for asserting and supporting a claim that certain information be withheld from public disclosure as confidential business information. In addition, the NPRM indicated a procedure by which the agency would consider and act upon claims for confidentiality. Since the publication of the NPRM, it has become clear to the agency that comprehensive regulations governing confidential business information, and information which is claimed to be confidential, are necessary. Such regulations are in preparation. The procedures and requirements in the final reporting regulation will be followed in the interim.

Several comments were received relating to the treatment of information which is claimed to be confidential business information. Chrysler stated that it did not "believe that a requirement of a showing of significant competitive damage is authorized by the Motor Vehicle Information and Cost Savings Act (as amended), but only that a showing of competitive damage is enough to require confidential treatment." The requirement of "significant" competitive damage proposed in the NPRM is drawn from the express terms of section 505(d)(1) of the Act. That section provides that the agency may withhold information from the public on the grounds that the information is confidential business information "only if the [Administrator] . . . determines that such information, if disclosed would result in *significant* competitive damage." (Emphasis added.) Chrysler provided no information, legislative history, or other argument in support of its be-

lief that the Act, notwithstanding the terms of section 505(d)(1), does not require a showing of significant competitive damage to support a manufacturer's claim of confidentiality. Moreover, no other manufacturer made an argument similar to Chrysler's argument. Because of the express terms of section 505(d)(1), and the mandatory nature of its directive, the agency must reject Chrysler's argument.

Chrysler also claimed that certain categories or types of information, which Chrysler identified in its comments, should be entitled to "prima facie" confidential treatment when submitted. The agency agrees with Chrysler that some sort of class treatment of information claimed to be confidential business information would be extremely beneficial. Class determination will reduce the burdens on manufacturers asserting claims for confidentiality, as well as the agency's burden of evaluating claims for confidential treatment of information. Moreover, class determinations will also help to ensure evenhanded treatment of claims for confidentiality.

The agency also agrees with Chrysler that classes should provide for "prima facie" categorization, rather than "per se" categorization. The prima facie approach, by establishing a rebuttable presumption of confidentiality, or non-confidentiality, will allow the agency the flexibility to give special consideration to special cases that may arise.

The agency, however, cannot agree with the categories of information which Chrysler claims should be afforded prima facie confidential treatment. The categories enumerated by Chrysler would include information that might be too general to be considered confidential business information, within the meaning of section 505(d)(1) of the Act. Moreover, the agency is unwilling to make a class determination of the confidentiality of certain kinds of information without providing the opportunity for comment from interested persons on the appropriateness of the class. Therefore, the agency will defer establishing classes of information for the purposes of determining business confidentiality until the rulemaking establishing procedures for the treatment of confidential information mentioned above is completed. The agency believes that the continued use of case-by-case determina-



tions of confidentiality for the interim period should not be unduly burdensome on the manufacturers or the agency.

Chrysler also commented that when a determination is made that certain information is confidential, that information should not be disclosed unless a "requester is able to make a substantial (as opposed to a casual [sic]) showing of need to review this information." Although Chrysler did not specifically reference it, this comment is presumably directed at the Administrator's power under section 505(d)(1) to release confidential business information when relevant to a proceeding under Title V of the Act. The agency has interpreted section 505(d)(1) as giving it the power to release confidential business information in a proceeding when it is in the public interest to do so. The determination of whether the release of confidential business information is in the public interest will usually entail a balancing of benefits and harms, both public and private, that may result from the release of information which has been determined to be confidential business information. Certainly, the need for the information may be an important factor in this balancing, as would other factors, such as the effect on competition resulting from the release of confidential business information. The agency agrees with Chrysler that these, as well as other factors, should be carefully considered before the exercise of the power to release admittedly confidential information. However, the agency cannot now assign weight to, or even identify, all the factors that should be considered prior to the release of confidential business information. The exercise of the 505(d)(1) power must proceed on a case-by-case basis.

Chrysler stated in its comments that a submitter of information should have ample opportunity to object to the proposed release of confidential business information, or to withdraw that information. The agency agrees that submitters of confidential information, or information claimed to be confidential, should have notice of, and opportunity to object to, the proposed release of that information. The NPRM and the final rule provide for such notice, as will the rule governing the treatment of confidential information. The submitter will have at least ten days, when feasible, between notice of intention

to disclose and actual disclosure, during which time the manufacturer may make any objections or take any other action that it regards as appropriate.

The agency does not agree that the submitter of information should have, in any circumstances, the right to withdraw information which it has been lawfully required to submit. Such a right would give to the submitter of the information, rather than the agency, the power to determine what information should be made publicly available. Since Congress clearly gave this power to the agency in section 505(d)(1), Chrysler's comment must be rejected.

Although Ford, General Motors, and AMC made no comments specifically relating to the procedures for treating confidential business information, those manufacturers did express some concern about the harmful effects, especially harm to competition, that would result from disclosure of some of the information which the agency is requiring. Those comments did not explain how disclosure may occur. Presumably, there is no issue of accidental disclosure of information. The agency knows of no instance where confidential business information in the agency's possession was inadvertently or negligently disclosed to the public. The agency takes precautions to ensure that confidential information in its possession is not inadvertently released. Those precautions have been effective in the past, and there is no reason to believe that they will not continue to be effective.

To the extent that confidential information may be released under the power contained in section 505(d)(1), the statements made with respect to the Chrysler comments are applicable here. The agency will consider all the interests, including the interests of the competitive structure of the automobile industry, before releasing any confidential business information. The agency will not release any information or, indeed, take any action at all, unless the agency believes that its actions will be in the public interest.

Both Ford and General Motors were concerned that confidential business information may be included in the agency's report to the Congress. The agency's report to Congress will be a public document. Therefore, the agency would have to decide to disclose any confidential information

before placing it in the report. Given the nature of the report to the Congress, the agency believes it is unlikely that disclosure of confidential business information would be necessary for an informative and complete report to the Congress, and that there are no grounds for the manufacturers' concern in this regard.

A minor change has been made with respect to the NPRM's provisions for incorporation by reference of information in these reports. The NPRM had proposed that, when a document was incorporated by reference in this report, the manufacturer would be required to append a copy of the incorporated document to the report. The NHTSA has determined that this provision is unnecessary in the case of documents which have previously been submitted to NHTSA. With respect to documents incorporated by reference which have previously been submitted to the NHTSA, the manufacturer is required to clearly identify the document and indicate the date on which and by whom the document was submitted to the NHTSA.

*Implementation costs.* In accordance with Department of Transportation policy encouraging adequate analysis of the consequences of regulatory action (41 FR 16200, April 16, 1976), the agency has summarized below its evaluation of the economic and other consequences of this ac-

tion on the public and private sectors. The total annual cost of implementing this final rule is expected to be less than \$775,000 for the manufacturers and the Federal government. The share of the manufacturers would be \$650,000, and that of the Federal government would be \$125,000. The costs to the manufacturers will consist primarily of the additional administrative costs incurred to gather, tabulate, and submit the required information. The total costs for a manufacturer's semiannual and supplementary reports for a model year will range between \$160,000 for a large manufacturer and \$5,000 for a low volume manufacturer exempted under section 502(c) of Title V.

In light of the foregoing, Title 49, Code of Federal Regulations, is amended by adding a new Part 537, *Automotive Fuel Economy Reports*.

The program official and attorney principally responsible for the development of this rule are Anees Adil and Stephen Kratzke, respectively.

Issued December 7, 1977.

Joan Claybrook  
Administrator

**42 F.R. 62374**  
**December 12, 1977**

## PREAMBLE TO AN AMENDMENT TO PART 537—AUTOMOTIVE FUEL ECONOMY REPORTS

(Docket Nos. FE 76-04; Notice 5;  
FE 77-03, Notice 4; 80-21, Notice 1)

**ACTION:** Final Rule.

**SUMMARY:** This notice makes conforming amendments to several of the agency's regulations deleting specific requirements for confidentiality determinations. These conforming amendments are needed as a result of the publication today of a new agency regulation governing requests for confidentiality determinations (Part 512). Since that new regulation supercedes the confidentiality provisions existing in several of the agency's other regulations, these conforming amendments are being made without notice and opportunity for comment.

**EFFECTIVE DATE:** These amendments are effective April 9, 1981.

**FOR FURTHER INFORMATION CONTACT:**

Roger Tilton, Office of Chief Counsel,  
National Highway Traffic Safety Administration,  
400 Seventh Street, S.W.,  
Washington, D.C. 20590 (202-426-9511).

**SUPPLEMENTARY INFORMATION:** In accordance with the above, Title 49 of the Code of Federal Regulations is amended as follows.

Part 525, *Exemptions From Average Fuel Economy Standards*, is revised as follows:

(1) Section 525.6(g) (1) and (2) are deleted and replaced with the following:

(g) Specify and segregate any part of the information and data submitted under this part that the petitioner wishes to have withheld from public disclosure in accordance with Part 512 of this Chapter.

(2) Section 525.13 is deleted and section 525.12 is revised to read:

**§ 525.12 Public inspection of information.**

(a) Except as provided in paragraph (b), any person may inspect available information relevant to a petition under this Part, including the petition and any supporting data, memoranda of informal meetings with the petitioner or any other interested persons, and the notices regarding the petition, in the Docket Section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this paragraph in accordance with Part 7 of the regulations of the Office of the Secretary of Transportation (49 CFR Part 7).

(b) Except for the release of confidential information authorized by section 505 of the Act and Part 512 of this Chapter, information made available for public inspection does not include information for which confidentiality is requested under § 525.6(g) and is granted in accordance with Part 512 and sections 502 and 505 of the Act and section 552(b) of Title 5 of the United States Code.

Part 537, *Automotive Fuel Economy Reports*, is revised as follows:

(1) Section 537.5(c) (7) (i) and (ii) are deleted and replaced with the following:

(7) Specify any part of the information or data in the report that the manufacturer believes should be withheld from public disclosure as trade secret or other confidential business information in accordance with Part 512 of this Chapter.

(2) Section 537.12 is deleted and section 537.11 is revised to read:

**§ 537.11 Public inspection of information.**

(a) Except as provided in paragraph (b), any person may inspect the information and data submit-

ted by a manufacturer under this part in the docket section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this section in accordance with the regulations of the Secretary of Transportation in Part 7 of this title.

(b) Except for the release of confidential information authorized by section 505 of the Act and Part 512 of this Chapter, information made available under paragraph (a) for public inspection does not include information for which confidentiality is requested under § 537.5(c)(7) and is granted in accordance with Part 512 of this Chapter, section 505 of the Act, and section 552(b) of Title 5 of the United States Code.

Part 555, *Temporary Exemption From Motor Vehicle Safety Standards*, is revised as follows:

(1) Section 555.5(b) (6) is revised to read:

(6) Specify any part of the information and data submitted which petitioner requests be

withheld from public disclosure in accordance with Part 512 of this Chapter.

(2) Section 555.10(b) is revised to read:

(b) Except for the release of confidential information authorized by Part 512 of this Chapter, information made available for inspection under paragraph (a) shall not include materials not relevant to the petition for which confidentiality is requested and granted in accordance with sections 112, 113, and 158 of the Act (15 U.S.C. 1401, 1402, and 1418) and section 552(b) of Title 5 of the United States Code.

Issued on December 30, 1980.

Joan Claybrook  
Administrator

**46 F.R. 2063**  
**January 8, 1981**

## PART 537—AUTOMOTIVE FUEL ECONOMY REPORTS

### Section

#### 537.1 Scope.

#### 537.2 Purpose.

#### 537.3 Applicability.

#### 537.4 Definitions.

#### 537.5 General requirements for reports.

#### 537.6 General content of reports.

#### 537.7 Pre-model year and mid-model year reports.

#### 537.8 Supplementary reports.

#### 537.9 Determination of fuel economy values and average fuel economy.

#### 537.10 Incorporation by reference.

#### 537.11 Public inspection of information.

#### 537.12 Confidential information.

AUTHORITY: Section 9, Pub. L. 89-670, 80 Stat. 931 (49 U.S.C. 1657); Section 301, Pub. L. 94-163, 89 Stat. 901 (15 U.S.C. 2005); delegation of authority at 41 FR 25015, June 22, 1976.

#### § 537.1 Scope.

This part establishes requirements for automobile manufacturers to submit reports to the National Highway Traffic Safety Administration regarding their efforts to improve automotive fuel economy.

#### § 537.2 Purpose.

The purpose of this part is to obtain information to aid the National Highway Traffic Safety Administration in evaluating automobile manufacturers' plans for complying with average fuel economy standards and in preparing an annual review of the average fuel economy standards.

#### § 537.3 Applicability.

This part applies to automobile manufacturers.

#### § 537.4 Definitions.

(a) *Statutory terms.* (1) The terms "average fuel economy standard," "fuel," "manufacture," and "model year" are used as defined in section 501 of the Act.

(2) The term "manufacturer" is used as defined in section 501 of the Act and in accordance with Part 529 of this chapter.

(3) The terms "average fuel economy," "fuel economy," and "model type" are used as defined in Subpart A of 40 CFR Part 600.

(4) The terms "automobile," "automobile capable of off-highway operation" and "passenger automobile" are used as defined in section 501 of the Act and in accordance with the determinations in Part 523 of this chapter.

(b) *Other terms.* (1) The term "loaded vehicle weight" is used as defined in Subpart A of 40 CFR Part 86.

(2) The terms "axle ratio," "base level," "body style," "car line," "city fuel economy," "combined fuel economy," "engine code," "gross vehicle weight," "highway fuel economy," "inertia weight," "transmission class," and "vehicle configuration" are used as defined in Subpart A of 40 CFR Part 600.

(3) The term "nonpassenger automobile" is used as defined in Part 523 of this chapter and in accordance with determinations in that part.

(4) The terms "approach angle," "axle clearance," "breakover angle," "cargo carrying volume," "departure angle," "passenger carrying volume," "running clearance," and "temporary living quarters" are used as defined in Part 523 of this chapter.

(5) The term "incomplete automobile manufacturer" is used as defined in Part 529 of this chapter.

(6) The term "designated seating position" is used as defined in § 571.3 of this chapter.

(7) As used in this part, unless otherwise required by the context:

(i) "Act means the Motor Vehicle Information and Cost Savings Act (Pub. L. 92-513), as amended by the Energy Policy and Conservation Act (Pub. L. 94-163).

(ii) "Administrator" means the Administrator of the National Highway Traffic Safety Administration or the Administrator's delegate.

(iii) "Current model year" means:

(A) In the case of a pre-model year report, the full model year immediately following the period during which that report is required by § 537.5(b) to be submitted.

(B) In the case of a mid-model year report, the model year during which that report is required by § 537.5(b) to be submitted.

(iv) "Average" means a production-weighted average.

(v) "Sales mix" means the number of automobiles, and the percentage of a manufacturer's annual total production of automobiles, in each inertia weight class, which the manufacturer plans to produce in a specified model year.

(vi) "Total drive ratio" means the ratio of an automobile's engine rotational speed (in revolutions per minute) to the automobile's forward speed (in miles per hour).

#### **§ 537.5 General requirements for reports.**

(a) For each current model year, each manufacturer shall submit a pre-model year report, a mid-model year report, and, as required by § 537.8, supplementary reports.

(b)(1) The pre-model year report required by this part for each current model year must be submitted not more than 30 days and not less than 1 day before the 1st day of that model year.

(2) The mid-model year report required by this part for each current model year must be submitted not earlier than the 180th day and not later than the 209th day of that model year.

(3) Each supplementary report must be submitted in accordance with § 537.8(c).

(c) Each report required by this part must:

(1) Identify the report as a pre-model year report, mid-model year report, or supplementary report, as appropriate;

(2) Identify the manufacturer submitting the report;

(3) State the full name, title, and address of the official responsible for preparing the report;

(4) Be submitted in 10 copies to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590;

(5) Identify the current model year;

(6) Be written in the English language; and

【(7) Specify any part of the information or data in the report that the manufacturer believes should be withheld from public disclosure as trade secret or other confidential business information in accordance with Part 512 of this Chapter. (46 F.R. 2063—January 8, 1981. Effective: April 9, 1981)】

(d) Each report required by this part must be based upon all information and data available to the manufacturer 30 days before the report is submitted to the Administrator.

(e)(1) Any manufacturer may provide any item of information or data required by § 537.7 (e) as an estimate, or as a set or range of alternatives.

(2) Any manufacturer submitting estimates, or sets or ranges of alternatives as permitted by paragraph (e)(1) of this section, shall state:

(i) The method for determining them;

(ii) The major uncertainties associated with them; and

(iii) The most likely value in the case of an estimate and the most likely alternative in the case of a set or range of alternatives.

#### § 537.6 General content of reports.

(a) *Pre-model year and mid-model year reports.* Except as provided in paragraph (c) of this section, the pre-model year report and the mid-model year report for model year 1978 and each model year thereafter must contain the information required by § 537.7(a).

(b) *Supplementary report.* Each supplementary report must contain the information required by § 537.8(b) (1), (2), or (3), as appropriate.

(c) *Exceptions.*

(1) The pre-model year report for model year 1978 is required to contain only the information specified in § 537.7(b) and (c)(1)-(4) for passenger automobiles and a description of how the manufacturer will use marketing measures to aid in achieving the sales mix of passenger automobiles projected for that model year.

(2) The mid-model year report for model year 1978 is required to contain only the information specified in § 537.7(b)-(e) for passenger automobiles.

(3) The pre-model year report is not required to contain the information specified in § 537.7(b), (c)(1) and (2), or (c)(4) (xiv)-(xvi) and (xxiv) if that report is required to be submitted before the fifth day after the date by which the manufacturer must submit the preliminary determination of its average fuel economy for the current model year to the Environmental Protection Agency under 40 CFR 600.506. Each manufacturer that does not include information under the exception in the immediately preceding sentence shall indicate in its report the date by which it must submit that preliminary determination.

(4) The pre-model year report and the mid-model year report submitted by an incomplete automobile manufacturer for any model year are not required to contain the information specified in § 537.7(c)(4) (xviii)-(xxii) and

(c)(5). The information provided by the incomplete automobile manufacturer under § 537.7(c) and (e) shall be according to base level instead of model type or carline.

#### § 537.7 Pre-model year and mid-model year reports.

(a)(1) Provide the information required by paragraphs (b)-(e) of this section for the manufacturer's passenger automobiles for the current model year.

(2) After providing the information required by paragraph (a)(1) of this section, provide the information required by paragraphs (b)-(e) of this section for each class, as specified in Part 533 of this chapter, of the manufacturer's non-passenger automobiles for the current model year.

(b)(1) *Projected average fuel economy.* State the projected average fuel economy for the manufacturer's automobiles determined in accordance with § 537.9 and based upon the fuel economy values and projected sales figures provided under paragraph (c)(2) of this section.

(2) State the projected final average fuel economy that the manufacturer anticipates having if the changes described under paragraph (d)(1)(ii) will cause that average to be different from the average fuel economy projected under paragraph (b)(1) of this section.

(3) State whether the manufacturer believes that the projection it provides under paragraph (b)(2) of this section, or if it does not provide an average under that paragraph, the projection it provides under paragraph (b)(1) of this section, sufficiently represents the manufacturer's average fuel economy for the current model year for the purposes of the Act. In the case of a manufacturer that believes that the projection is not sufficiently representative for those purposes, state the specific nature of and reason for the insufficiency and the specific additional testing for derivation of fuel economy values by analytical methods believed by the manufacturer necessary to eliminate the insufficiency and any plans of the manufacturer to undertake that testing or derivation voluntarily and submit the resulting data to the Environmental Protection Agency under 40 CFR 600.509.

(c) *Model type fuel economy and technical information.* (1) For each model type of the manufacturer's automobiles, provide the information specified in paragraph (c) (2) of this section in tabular form. List the model types in order of increasing average inertia weight from top to bottom down the left side of the table and list the information categories in the order specified in paragraph (c) (2) of this section from left to right across the top of the table.

- (2) (i) City fuel economy;
- (ii) Highway fuel economy;
- (iii) Combined fuel economy; and
- (iv) Projected sales for the current model year.

(3) For each vehicle configuration whose fuel economy was used to calculate the fuel economy values for a model type under paragraph (c) (2) of this section, provide the information specified in paragraph (c) (4) of this section in tabular form. List the vehicle configurations, by model type in the order listed under paragraph (c) (2) of this section, from top to bottom down the left of the table and list the information categories across the top of the table from left to right in the order specified in paragraph (c) (4) of this section.

- (4) (i) Loaded vehicle weight;
- (ii) Inertia weight;
- (iii) Cubic inch displacement of engine;
- (iv) Number of engine cylinders;
- (v) SAE net horsepower;
- (vi) Engine code;
- (vii) Fuel system (number of carburetor barrels or, if fuel injection is used, so indicate);
- (viii) Emission control system;
- (ix) Transmission class;
- (x) Number of forward speeds;
- (xi) Existence of overdrive (indicate yes or no);
- (xii) Total drive ratio;
- (xiii) Axle ratio;
- (xiv) City fuel economy;
- (xv) Highway fuel economy;
- (xvi) Combined fuel economy;
- (xvii) Projected sales for the current model year;
- (xviii) (A) In the case of passenger automobiles, interior volume index, determined

in accordance with Subpart D of 40 CFR Part 600;

(B) In the case of nonpassenger automobiles:

- (1) Passenger-carrying volume, and
- (2) Cargo-carrying volume;
- (xix) Number of designated seating positions;
- (xx) Performance of the function described in § 523.5(a) (5) of this chapter (indicate yes or no);
- (xxi) Existence of temporary living quarters (indicate yes or no);
- (xxii) Body style;
- (xxiii) Frontal area;
- (xxiv) Road load power at 50 miles per hour, if determined by the manufacturer for purposes other than compliance with this Part to differ from the road load setting prescribed in 40 CFR § 86.177-11(d);
- (xxv) Optional equipment which the manufacturer is required under 40 CFR Parts 86 and 600 to have actually installed on the vehicle configuration, or the weight of which must be included in the curb weight computation for the vehicle configuration, for fuel economy testing purposes.
- (5) For each model type of automobile which is classified as an automobile capable of off-highway operation under Part 523 of this chapter, provide the following data:
  - (i) Approach angle;
  - (ii) Departure angle;
  - (iii) Breakover angle;
  - (iv) Axle clearance;
  - (v) Minimum running clearance; and
  - (vi) Existence of 4-wheel drive (indicate yes or no).
- (6) The fuel economy values provided under paragraphs (c) (2) and (4) of this section shall be determined in accordance with § 537.9.
- (d) *Automobile technology and sales mix changes.* (1) For each inertia weight class of the manufacturer's automobiles—
  - (i) Describe the differences between the technology of its automobiles for the current model year and of its automobiles for the immediately preceding model year that result in its automobiles for the current model year



having higher fuel economy than its automobiles for the immediately preceding model year.

(ii) Describe any running changes that the manufacturer intends to make on its automobiles for the current model year that will affect the fuel economy of those automobiles.

(2) Describe any differences in the projected sales mixes of the inertia weight classes of the manufacturer's automobiles for the current model year and of the manufacturer's automobiles for the immediately preceding model year that result in its automobiles for the current model year having higher average fuel economy than its automobiles for the immediately preceding model year.

(e) *Marketing measures.* (1) Describe and quantify the manufacturer's advertising and automobile base price and equipment option pricing that will tend to aid the manufacturer in improving the average fuel economy of its automobiles for the current model year.

(2) Describe and quantify the manufacturer's dealer incentive programs that have been or will be implemented during the current model year for each carline of the manufacturer's automobiles.

(3) State the total number of dollars spent and to be spent on advertising for the current model year for each carline of the manufacturer's automobiles and, to the extent available, for each model type in that carline.

#### **§ 537.8 Supplementary reports.**

(a)(1) Except as provided in paragraph (d) of this section, each manufacturer whose most recently submitted semiannual report contained an average fuel economy projection under § 537.7 (b)(2) or, if no average fuel economy was projected under that section, under § 537.7(b)(1), that was not less than the applicable average fuel economy standard and who now projects an average fuel economy which is less than the applicable standard, shall file a supplementary report containing the information specified in paragraph (b)(1) of this section.

(2) Except as provided in paragraph (d) of this section, each manufacturer that determines that its average fuel economy for the

current model year as projected under § 537.7 (b)(2) or, if no average fuel economy was projected under that section, as projected under § 537.7(b)(1), is less representative than the manufacturer previously reported it to be under § 537.7(b)(3), this section, or both, shall file a supplementary report containing the information specified in paragraph (b)(2) of this section.

(3) Each manufacturer whose pre-model year report omits any of the information specified in § 537.7(b), (c)(1) and (2), or (c)(4) (xiv)-(xvi) and (xxiv) shall file a supplementary report containing the information specified in paragraph (b)(3) of this section.

(b)(1) The supplementary report required by paragraph (a)(1) of this section must contain:

(i) Such revisions of and additions to the information previously submitted by the manufacturer under this part regarding the automobiles whose projected average fuel economy has decreased as specified in paragraph (a)(1) of this section as are necessary—

(A) To reflect the decrease and its cause;

(B) To describe any expanded use or introduction of technological improvements, production mix changes and marketing measures that the manufacturer intends to make to comply with the applicable average fuel economy standard; and

(C) To indicate a new projected average fuel economy based upon these additional measures.

(ii) An explanation of the cause of the decrease in average fuel economy that led to the manufacturer's having to submit the supplementary report required by paragraph (a)(1) of this section.

(2) The supplementary report required by paragraph (a)(2) of this section must contain—

(i) A statement of the specific nature of and reason for the insufficiency in the representativeness of the projected average fuel economy;

(ii) A statement of specific additional testing or derivation of fuel economy values by analytical methods believed by the manufacturer necessary to eliminate the insufficiency; and

(iii) A description of any plans of the manufacturer to undertake that testing or derivation voluntarily and submit the resulting data to the Environmental Protection Agency under 40 CFR 600.509.

(3) The supplementary report required by paragraph (a)(3) of this section must contain:

(i) All of the information omitted from the pre-model year report under § 537.6(c)(2); and

(ii) Such revisions of and additions to the information submitted by the manufacturer in its pre-model year report regarding the automobiles produced during the current model year as are necessary to reflect the information provided under paragraph (b)(3)(i) of this section.

(c)(1) Each report required by paragraph (a)(1) or (2) of this section must be submitted in accordance with § 537.5(c) not more than 45 days after the date on which the manufacturer determined, or could have determined with reasonable diligence, that a report is required under paragraph (a)(1) or (2) of this section.

(2) Each report required by paragraph (a)(3) of this section must be submitted in accordance with § 537.5(c) not later than five days after the day by which the manufacturer is required to submit a preliminary calculation of its average fuel economy for the current model year to the Environmental Protection Agency under 40 CFR 600.506

(d) A supplementary report is not required to be submitted by the manufacturer under paragraphs (a)(1) or (2) of this section:

(1) With respect to information submitted under this Part before the most recent semi-annual report submitted by the manufacturer under this Part, or

(2) When the date specified in paragraph (c) of this section occurs:

(i) During the 60-day period immediately preceding the day by which the mid-model year report for the current model year must

be submitted by the manufacturer under this Part, or

(ii) After the day by which the pre-model year report for the model year immediately following the current model year must be submitted by the manufacturer under this Part.

#### **§ 537.9 Determination of fuel economy values and average fuel economy.**

(a) *Vehicle configuration fuel economy values.*

(1) For each vehicle configuration for which a fuel economy value is required under paragraph (c) of this section and has been determined and approved under 40 CFR Part 600, the manufacturer shall submit that fuel economy value.

(2) For each vehicle configuration specified in paragraph (a)(1) of this section for which a fuel economy value approved under 40 CFR 600 does not exist, but for which a fuel economy value determined under that Part exists, the manufacturer shall submit that fuel economy value.

(3) For each vehicle configuration specified in paragraph (a)(1) of this section for which a fuel economy value has been neither determined nor approved under 40 CFR Part 600, the manufacturer shall submit a fuel economy value based on tests or analyses comparable to those prescribed or permitted under 40 CFR Part 600 and a description of the test procedures or analytical methods used.

(b) *Base level and model type fuel economy values.*

For each base level and model type, the manufacturer shall submit a fuel economy value based on values submitted under paragraph (a) of this section and calculated in the same manner as base level and model type fuel economy values are calculated for use under Subpart F of 40 CFR Part 600.

(c) *Average fuel economy.*

Average fuel economy must be based upon fuel economy values calculated under paragraph (b) of this section for each model type and must be calculated in accordance with 40 CFR 600.506, using the configuration specified in 40 CFR 600.506(a)(2), except that fuel economy values

for running changes and for new base levels are required only for those changes made or base levels added before the average fuel economy is required to be submitted under this Part.

**§ 537.10 Incorporation by reference.**

(a) A manufacturer may incorporate by reference in a report required by this Part any document other than a report, petition, or application, or portion thereof submitted to any Federal department or agency more than two model years before the current model year.

(b) A manufacturer that incorporates by reference a document not previously submitted to the National Highway Traffic Safety Administration shall append that document to the report.

(c) A manufacturer that incorporates by reference a document shall clearly identify the document, and, in the case of a document previously submitted to the National Highway Traffic Safety Administration, indicate the date on which, and

the person by whom, the document was submitted to this agency.

**§ 537.11 Public inspection of information.**

[(a) Except as provided in paragraph (b), any person may inspect the information and data submitted by a manufacturer under this part in the docket section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this section in accordance with the regulations of the Secretary of Transportation in Part 7 of this title.

(b) Except for the release of confidential information authorized by section 505 of the Act and Part 512 of this Chapter, information made available under paragraph (a) for public inspection does not include information for which confidentiality is requested under § 537.5(c)(7) and is granted in accordance with Part 512 of this Chapter, section 505 of the Act, and section 552(b) of Title 5 of the United States Code. (46 F.R. 2063—January 8, 1981. Effective: April 9, 1981)]



**PREAMBLE TO PART 551—PROCEDURAL RULES****(Docket No. 4)**

The purpose of this rule-making action is to adopt new Part 351—General Procedural Rules.

The new part will eventually contain the rules on those matters that are common to all procedures. At this time only the rules governing submittals in writing, and governing service of process on designated agents of foreign manufacturers, are being adopted.

The rules governing submittals in writing are those considered necessary for the efficient handling of business. These rules apply, of course, to written comments on notices of proposed rule-making. Designation of agents by foreign manufacturers to receive service of process is required by section 110(e) of the National Traffic and Motor Vehicle Safety Act of 1966, and the rules implement this provision. Both groups of rules are self-explanatory. Since these rules are procedural in character, notice of proposed rule-making is not required (5 U.S.C. 553(b)).

In consideration of the foregoing, Chapter II of Title 49 of the Code of Federal Regulations is amended by inserting, in Subchapter B, a new part as set forth below. This action is taken under the authority of sections 110(e) and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (80 Stat. 718); 23 U.S.C. section 315 and chapter 4; and the delegation of authority of October 20, 1966 (31 F.R. 13952).

These rules become effective December 20, 1966.

Issued in Washington, D.C., on December 15, 1966.

**Alan S. Boyd,**  
Under Secretary of Commerce  
for Transportation

**SUBPART A—GENERAL**

Sec.

**351.1 Scope.****SUBPART B—[RESERVED]****351.31 Form of communications.****351.33 Address of communications.****351.35 Subscription of communications.****351.37 Language of communications.****SUBPART D—SERVICE OF PROCESS; AGENTS****351.41 [Reserved]****351.43 [Reserved]****351.45 Service of process on foreign manufacturers and importers**

**AUTHORITY:** The provisions of this Part 351 issued under secs. 110(e), 119, 80 Stat. 719, 728; 15 U.S.C. 1399, 1407, 23 U.S.C. 315, 401-404; Delegation of Authority, 31 F.R. 13952, 32 F.R. 5606.

**31 F.R. 16267**  
**December 20, 1966**



## PREAMBLE TO AMENDMENT TO PART 551—PROCEDURAL RULES

Parts 501, 551, and 553 of Title 49, Code of Federal Regulations, currently detail the delegated powers, general procedures, and rulemaking procedures utilized by the National Highway Traffic Safety Administration (NHTSA) to implement the National Traffic and Motor Vehicle Safety Act of 1966, Public Law 89-563. The Motor Vehicle Information and Cost Savings Act, Public Law 92-513, vests additional authority in the NHTSA. This amendment extends the applicability of Parts 501, 551, and 553 to the Cost Savings Act to establish uniform rulemaking procedures for both Acts.

Accordingly, amendments are made to 49 CFR, Part 501, "Organization and delegation of powers and duties", Part 551, "Procedural rules", and Part 553, "Rulemaking procedures: motor vehicle safety standards". . . .

Since this amendment relates to NHTSA organization, procedures, and practices, it is

found that notice and public procedure thereon are unnecessary.

Effective date: July 27, 1973. Because this notice is only an extension of existing procedures to new areas of jurisdiction, it is found that an immediate effective date is in the public interest.

(Secs. 9, Pub. L. 89-670, 80 Stat. 944, 49 U.S.C. 1657; 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; 102, 105, 201, 205, 302, and 408, Pub. L. 92-513, 86 Stat. 947, 15 U.S.C. 1912, 1915, 1941, 1945, 1962, and 1988; delegation of authority at 38 FR 12147).

Issued on July 23, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

**38 F.R. 20086**  
**July 27, 1973**





## PART 551—PROCEDURAL RULES

### SUBPART A—GENERAL

#### § 551.1. Scope.

This part contains rule of procedure generally applicable to the transaction of official business under the National Traffic and Motor Vehicle Safety Act of 1966, the Motor Vehicle Information and Cost Savings Act, and the Highway Safety Act of 1966. These rules apply in addition to the rules governing specific proceedings. In case of inconsistency with these general rules, the specific rules prevail.

### SUBPART B—[RESERVED]

### SUBPART C—SUBMITTALS IN WRITING

#### § 551.31 Form of Communications.

Any communication in writing relating to official business (including formal documents) shall be on opaque and durable paper not larger than 9 by 14 inches in size. Tables, charts, or originals of other documents that are attached to communications shall be folded to this size, if possible. The left margin of communications shall be at least 1½ inches wide, and if a communication is bound, it shall be bound on the left side. All copies submitted shall be legible.

#### § 551.33

Unless otherwise specified, communications shall be addressed to the Administrator, National Highway Traffic Safety Administration, U.S. Department of Transportation, 400 Seventh Street, S.W., Washington, D.C. 20590. Communications may not be addressed to a staff member's private address.

#### § 551.35 Subscription of communications.

Each communication shall be signed in ink and shall disclose the full legal name and address of the person signing it and, if he is an agent, of his principal.

#### § 551.37 Language of communications.

Communications and attachments thereto shall be in English. Any matter written in a foreign language will be considered only if accompanied by a translation into English. A translation shall bear a certificate by the translator certifying that he is qualified to make the translation; that the translation is complete except as otherwise clearly indicated; and that it is accurate to the best of the translator's knowledge and belief. The translator shall sign the certificate in ink and state his full, legal name, occupation and address.

### SUBPART D—SERVICE OF PROCESS; AGENTS

#### § 551.41 [Reserved]

#### § 551.43 [Reserved]

#### § 551.45 Service of process on foreign manufacturers and importers.

(a) *Designation of agent for service.* Any manufacturer, assembler or importer of motor vehicles or motor vehicle equipment (hereinafter called manufacturer) before offering a motor vehicle or item of motor vehicle equipment for importation into the United States, shall designate a permanent resident of the United States as his agent upon whom service of all processes, notices, orders, decisions, and requirements may be made for him and on his behalf as provided in section 110(e) of the National Traffic and Motor Vehicle Safety Act of 1966 (80 Stat. 718) and in this section. The agent may be an individual, a firm, or a domestic corporation. Any number of manufacturers may designate the same person as agent.

(b) *Form and contents of designation.* The designation shall be addressed to the Administrator, National Highway Traffic Safety Administration, U.S. Department of Transportation, 400 Seventh Street, S.W., Washington, D.C. 20590. It shall be in writing and dated; all

signatures shall be in ink. The designation shall be made in legal form required to make it valid, and binding on the laws, or other requirements governing the making of the designation by the manufacturer at the place and time where it is made, and the person or persons signing the designation shall certify that it is so made. The designation shall disclose the full legal name, principal place of business, and mailing address of the manufacturer. If any of the products of the manufacturer do not bear his legal name, the marks, trade names, or other designations of origin which these products bear shall be stated in the designation. The designation of agent shall provide that it remains in effect until withdrawn or replaced by the manufacturer. The designation shall bear a declaration of acceptance duly signed by the designated agent. The full legal name and mailing address of the agent shall be stated. Designations are binding on the manufacturer even when not in compliance with all requirements of this section

until rejected by the Administrator. The designated agent may not assign performance of his functions under the designation to another person.

(c) *Method of service.* Service of any process, notice, order, requirement, or decision specified in section 110(e) of the National Traffic and Motor Vehicle Safety Act of 1966 may be made by registered or certified mail addressed to the agent, with return receipt requested, or in any other manner authorized by law. If service cannot be effected because the agent has died (or, if a firm or a corporation ceased to exist) or moved, or otherwise does not receive correctly addressed mail, service may be made by posting as provided in section 110(e).

31 F.R. 16267-8  
December 20, 1966

## PREAMBLE TO PART 552—PETITIONS FOR RULEMAKING, DEFECT, AND NONCOMPLIANCE ORDERS

(Docket No. 75-12; Notice 2)

This notice establishes a new regulation specifying the requirements for submission of petitions for rulemaking, and petitions for the commencement of defect or non-compliance proceedings in accordance with section 124 of the National Traffic and Motor Vehicle Safety Act, 15 U.S.C. 1410a. It also describes the procedures the NHTSA will follow in acting upon such petitions.

The notice of proposed rulemaking on which this issuance is based was issued on May 16, 1975 (40 CFR 21486), in response to which eight comments were received. After careful consideration of those comments, the NHTSA has determined that no substantial change from the proposal is called for in the language of the rule.

Most of the comments received in response to the proposed resolution supported the establishment of some kind of regulation with respect to petitions for rulemaking. American Motors supported the proposal without qualification, while the other commenters suggested changes of varying import.

The Center for Auto Safety argued that the proposed rule was too narrow, as it did not deal with petitions to close defect investigations. Section 124 of the Act, upon which Part 552 is based, establishes formal requirements for petitions in the major areas of agency activity under the Act: petitions to "commence proceedings" concerning the issuance, amendment, or revocation of a motor vehicle safety standard, and petitions to "commence proceedings" concerning the issuance of an order with respect to the failure to comply with a safety standard or the existence of a safety-related defect. These are in fact the main areas in which petitions have been received by the agency in the past. Section 124 indicates an intent of Congress to provide,

and at the same time to limit, formal "petition treatment" to these areas. This treatment includes a statutory deadline for action, and Federal Register publication of reasons for denial. A corollary of this Congressional intent is that an informal response by the agency to other types of requests for action is satisfactory. Accordingly, such other requests will not be treated as petitions, but will be handled informally (as in the past) under existing correspondence or other appropriate NHTSA procedures.

The Center for Auto Safety also urged that, upon denial of a petition, the NHTSA should be required to provide the reasons for the denial in specific detail. This suggestion is outside the intent of the statutory provision, and without merit. A full discussion of the agency's reasons for denial of a petition is provided to the petitioner, and copies of such a denial letter are (except for confidential matter) generally available to any person upon request. This agency does not find any intent of Congress to require the full text of denial letters to be printed in the Federal Register. The NHTSA practice of publishing a summary of its reasons for a denial appears to satisfy both the letter and the spirit of section 124. The reason for the provision is to make the agency publicly accountable and "responsible" (from the title of the section) for its negative decisions, as it naturally is for its positive ones. A person who, put on notice by the Federal Register publication, wishes to delve more deeply into the background of the matter may readily do so by requesting further information from the agency.

General Motors objected to the use of the "reasonable possibility" standard in determining whether to grant or deny a petition because it would allow for the granting of virtually any

petition. The NHTSA does not agree. It should be remembered that the grant of a petition under this part leads only to the commencement of agency action to gather information necessary to make a decision. The use of the modifier "reasonable" limits the discretion of the Administrator to grant only a petition for an order or rule that has a reasonable chance of being issued, not a petition for any order or rule that may conceivably be issued. The substitution of the term "reasonable probability," as urged by GM, would tend to transform a threshold decision as to whether or not the rule or order *might* issue into a determination of whether or not it *should* issue. Such a result would dilute the intent of both section 124 and Part 552 to provide means for interested parties, without access to complete data, to seek remedial action regarding what they consider to be defective or unsafe characteristics of motor vehicles.

GM also urged that a petitioner be required to verify the facts alleged in the petition before any information requests are made to the manufacturer. Such a requirement would preclude the granting of a petition submitted by an individual or organization with limited resources. The technical review conducted by the Associate Administrator necessarily includes an analysis of the facts alleged in the petition. If he determines that the facts need verification by the petitioner, he has the discretion to request that the petitioner submit additional information. However, to require such information as a condition precedent to granting the petition would not only unduly burden the petitioner, but also would exceed the statutory requirement that the petition merely set forth the facts which it is claimed establish the necessity of an order, not that it prove those facts.

The Recreation Vehicle Industry Association (RVIA) objected to the provision denying cross examination of witnesses at hearings held on petitions under Part 552. It is well established that the NHTSA may hold informal hearings under the Traffic Safety Act, in cases such as *Automotive Parts & Accessories Ass'n, Inc. v. Boyd*, 407 F.2d 330, 334 (D.C. Cir. 1968). The purpose of an informal hearing is to permit the NHTSA to determine whether or not a petitioner

has a valid complaint or request for rulemaking. This purpose is best served by allowing both sides to present information and arguments without the necessity for conforming to strict evidentiary rules. In addition, the drafters of section 124 intended to encourage the free use of the petition procedure in alerting the NHTSA to vehicle safety problems. The possibility of having to submit to rigorous cross-examination might deter many potential petitioners from utilizing this procedure. Accordingly, the provision allowing for an informal hearing has been retained intact.

The RVIA also argued that the manufacturer be allowed to respond to the petition before the Administrator decided whether to grant or deny it. Such a proposal misapprehends the purpose of the petition and ignores the opportunities a manufacturer has to respond to adverse information submitted in a petition. If the NHTSA denies the petition, there is no need for response as there is no action adverse to the manufacturer. If the petition is granted, the applicable rulemaking and investigatory procedures are commenced, with full opportunity for the manufacturer to present data and arguments against the proposed rule or order. As noted above, the purpose of the technical review is to facilitate a threshold decision as to whether an order or rule might issue, not whether it will. Thus it is not necessary to consider the comments of the manufacturer before deciding whether to grant or deny.

The proposed time for Federal Register publication of notice of a denial of a petition was 30 days. In order to allow time to prepare a monthly publication of a notice of denials, in the interest of efficiency and conservation of Federal Register space, this period is set at 45 days.

In light of the foregoing, Title 49, Code of Federal Regulation, is amended by the addition of a new Part 552, *Petitions for Rulemaking, Defect, and Noncompliance Orders. . . .*

*Effective date:* September 4, 1975.

Issued on September 4, 1975.

James B. Gregory  
Administrator  
40 F.R. 42013  
September 10, 1975

## PART 552—PETITIONS FOR RULEMAKING, DEFECT, AND NONCOMPLIANCE ORDERS

*Sec.*

- 552.1 Scope.
- 552.2 Purpose.
- 552.3 General.
- 552.4 Requirements for Petition.
- 552.5 Improperly filed petitions.
- 552.6 Technical review.
- 552.7 Public hearing.
- 552.8 Determination whether to commence a proceeding.
- 552.9 Grant of petition.
- 552.10 Denial of petition.

AUTHORITY: Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, (15 U.S.C. 1392, 1407); Sec. 124, 152 Pub. L. 93-492, 88 Stat. 1470, (15 U.S.C. 1410a, 1412); delegation of authority at 49 CFR 1.51.

**§ 552.1 Scope.** This part establishes procedures for the submission and disposition of petitions filed by interested persons pursuant to the National Traffic and Motor Vehicle Safety Act and the Motor Vehicle Information and Cost Savings Act, to initiate rulemaking or to make a determination that a motor vehicle or item of replacement equipment does not comply with an applicable Federal motor vehicle safety standard or contains a defect which relates to motor vehicle safety.

**§ 552.2 Purpose.** The purpose of this part is to enable the National Highway Traffic Safety Administration to identify and respond on a timely basis to petitions for rulemaking or defect or noncompliance determinations, and to inform the public of the procedures following in response to such petitions.

**§ 552.3 General.** Any interested person may file with the Administrator a petition requesting him (1) to commence a proceeding respecting the issuance, amendment, or revocation of a motor vehicle safety standard, or (2) to commence a proceeding to determine whether to issue an order concerning the notification and remedy of a failure of a motor vehicle or item of replacement equipment to comply with an applicable motor vehicle safety standard or a defect in such vehicle or equipment that relates to motor vehicle safety.

**§ 552.4 Requirements for petition.** A petition filed under this part should be addressed and submitted to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. Each petition filed under this part must—

- (a) Be written in the English language;
- (b) Have, preceding its text, a heading that includes the word "Petition";
- (c) Set forth facts which it is claimed establish that an order is necessary;
- (d) Set forth a brief description of the substance of the order which it is claimed should be issued; and
- (e) Contain the name and address of the petitioner.

**§ 552.5 Improperly filed petitions.** (a) A petition that is not addressed as specified in § 552.4, but that meets the other requirements of that section, will be treated as a properly filed petition, received as of the time it is discovered and identified.

(b) A document that fails to conform to one or more of the requirements of 552.4(a) through (e) will not be treated as a petition under this part. Such a document will be treated according

to the existing correspondence or other appropriate procedures of the NHTSA, and any suggestions contained in it will be considered at the discretion of the Administrator or his delegate.

**§ 552.6 Technical review.** The appropriate Associate Administrator conducts a technical review of the petition, to determine whether there is a reasonable possibility that the requested order will be issued at the conclusion of the appropriate proceeding. The technical review may consist of an analysis of the material submitted, together with information already in the possession of the agency, or it may also include the collection of additional information, or a public meeting in accordance with § 552.7.

**§ 552.7 Public meeting.** If the Associate Administrator decides that a public meeting on the subject of the petition would contribute to the determination whether to commence a proceeding, he issues a notice of public meeting for publication in the Federal Register to advise interested persons of the time, place, and subject matter of the public meeting and invite their participation. Interested persons may submit their views and evidence through oral or written presentations, or both. There is no cross examination of witnesses. A transcript of the meeting is kept and exhibits may be accepted as part of the transcript. Sections 556 and 557 of Title 5, United States Code, do not apply to meetings held under this part. The Chief Counsel designates a member of his staff to serve as legal officer at the meeting.

**§ 552.8 Determination whether to commence a proceeding.** At the conclusion of the technical review, the Administrator or his delegate deter-

mines whether there is a reasonable possibility that the order requested in the petition will be issued at the conclusion of the appropriate proceeding. If such a reasonable possibility is found, the petition is granted. If it is not found, the petition is denied. In either event, the petitioner is notified of the grant or denial not more than 120 days after receipt of the petition by the NHTSA.

**§ 551.9 Grant of petition.** (a) If a petition for rulemaking with respect to a motor vehicle safety standard is granted, a rulemaking proceeding is promptly commenced in accordance with applicable NHTSA and statutory procedures. The granting of such a petition and the commencement of a rulemaking proceeding does not signify, however, that the rule in question will be issued. A decision as to the issuance of the rule is made on the basis of all available information developed in the course of the rulemaking proceeding, in accordance with statutory criteria.

(b) If a petition with respect to a noncompliance or a defect is granted, a proceeding to determine the existence of the noncompliance or defect is promptly commenced by the initiation of an investigation by the Office of Standards Enforcement or the Office of Defects Investigation, as appropriate.

**§ 552.10 Denial of petition.** If a petition is denied, a Federal Register notice of the denial is issued within 45 days of the denial, setting forth the reasons for denial of the petition.

40 F.R. 42013  
September 10, 1975

## PREAMBLE TO PART 553—RULEMAKING PROCEDURES: MOTOR VEHICLE SAFETY STANDARDS

This amendment revokes "Part 215—Rule-Making; Initial Safety Standards," 31 F.R. 13127, as amended, in 31 F.R. 15197, 32 F.R. 976, 32 F.R. 5832, and 32 F.R. 13000, and adds a new Part 353—"Rule-Making Procedures: Motor Vehicle Safety Standards" to the regulations of the Federal Highway Administration.

The purpose of this part is to describe the procedures applicable to the Federal Highway Administration in prescribing public rules for motor vehicle safety standards and to provide for appropriate participation by interested persons.

The new part provides for general notices of proposed rule making, to be published in the *Federal Register*, except in cases where the Administration finds that notice is impractical, unnecessary or contrary to the public interest. The new part also provides for petitions for extension of time to comment on notices of proposed rule making, petitions for reconsideration, and petitions for proposed rule making.

Sections 556 and 557 of Title 5, United States Code (formerly sections 7 and 8 of the Administrative Procedure Act), do not apply to rule making under this part. Consequently, hearings are not a required part of the rule-making procedure. However, hearings may be held, whenever it is considered necessary and desirable. Unless otherwise specified, any hearing held would be nonadversary, with no formal pleadings and no adverse party. A rule issued after such hearing would not necessarily be based exclusively on the record of the hearing.

All final rules will be published in the *Federal Register*, unless, in accordance with section 552(a) of Title 5, United States Code, actual and timely notice has been given to all persons subject to it.

Since this amendment relates to Federal Highway Administration organization, procedures,

and practices, notice and public procedure hereon is not necessary and it may be made effective in less than thirty (30) days after publication in the *Federal Register*.

This amendment is made under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1407), and the delegation of authority of October 14, 1967 (32 F.R. 14277).

In consideration of the foregoing, Title 49[23] of the Code of Federal Regulations is amended by deleting Part 215 and adding the following new Part 353—"Rule-Making Procedures: Motor Vehicle Safety Standards" effective November 17, 1967.

Issued in Washington, D.C., on November 9, 1967.

Lowell K. Bridwell,  
Federal Highway Administrator

### SUBPART A—GENERAL

#### Sec.

- 353.1** Applicability.
- 353.3** Definitions.
- 353.5** Regulatory dockets.
- 353.7** Records.

### SUBPART B—PROCEDURES FOR ADOPTION OF RULES UNDER SECTIONS 103 AND 109 OF THE ACT

- 353.11** General.
- 353.13** Initiation of rule making.
- 353.15** Contents of notices of proposed rule making.
- 353.17** Participation of interested persons.
- 353.19** Petitions for extension of time to comment.
- 353.21** Contents of written comments.
- 353.23** Consideration of comments received.

- 353.25 Additional rule-making proceedings.
  - 353.27 Hearings.
  - 353.29 Adoption of final rules.
  - 353.31 Petitions for rule making.
  - 353.33 Processing of petitions.
  - 353.35 Petitions for reconsideration.
  - 353.37 Proceedings on petitions for reconsideration.
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AUTHORITY: The provisions of this Part 353 issued under secs. 103 and 119, 80 Stat. 728; 15 U.S.C. 1407; Delegation of Authority of Oct. 14, 1967 (32 F.R. 14277).

32 F.R. 15818  
November 17, 1967



## PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES: MOTOR VEHICLE SAFETY STANDARDS

### Effect of Petition for Reconsideration

Sections 553.35 and 553.37 of Title 49, Code of Federal Regulations, provide procedural rules for submission of, and action upon, petitions for reconsideration of rules issued under the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1381 et seq.). The purpose of this notice is to establish a new section in Part 553, to make clear the National Highway Safety Bureau's interpretation of the effect of the filing of a petition for reconsideration upon the running of the 60-day period for judicial review of orders issued under the Act (15 U.S.C. 1394).

The Bureau's position is that the 60-day period for judicial review is stayed by a timely petition for reconsideration of an order, and that the review period does not expire until 60 days after the Director's disposition of the petition by notice in the *Federal Register*. A party adversely affected by the order may, however, seek judicial review before the petition is disposed of.

The staying of the expiration of the review period while action is being taken on petitions for reconsideration is manifestly in the interest both of affected parties and orderly administration by the Bureau. Original orders are often amended on reconsideration. If the expiration of the judicial review period is not stayed, affected parties will be forced to file their appeal in court within 30 days after filing a petition for reconsideration, regarding an issue that may subsequently be mooted by Bureau action on the petition. There would be corresponding pressure on the Bureau to take hasty action on the petition. It appears that the intent of the statute would be best carried out by allowing an appeal

at any time between the original Bureau order and 60 days after final action on petitions.

The language of the statute can support this interpretation. The key language is that a person may seek judicial review "at any time prior to the 60th day after such order is issued" (15 U.S.C. 1394(a)(1)). Where a rule is promulgated, and then action is taken on a petition for reconsideration, actually both actions can reasonably be viewed as the issuance of an order. A party may accordingly wait until the last "order" in the rulemaking process to prepare his court action, with 60 days to do so. Alternatively, he may appeal immediately after the rule is first issued, as, for example, where the effective date is soon enough that he considers it important to obtain an immediate resolution of the issues.

In light of the foregoing, Part 553, Rulemaking Procedures: Motor Vehicle Safety Standards, of Title 49, Code of Federal Regulations is amended by adding a new § 553.39, Effect of petition for reconsideration on time for seeking judicial review, to read as set forth below. Since this rule is interpretative in nature, notice and public procedure thereon are unnecessary, and it is effective upon publication in the *Federal Register*.

Issued on December 17, 1970.

Douglas W. Toms,  
Director.

**December 19, 1970**  
**35 F.R. 19268**



**PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES: MOTOR  
VEHICLE SAFETY STANDARDS**

**Petitions for Extension of Time to Comment**

Section 553.19, rulemaking procedures, in Chapter 5 of Title 49, Code of Federal Regulations, currently requires that a petition for extension of time to comment on a rulemaking notice be received not later than 3 days before the expiration of the comment period specified in the notice. The 3-day requirement has proven unsatisfactory in situations where the petition is received close to the deadline, and the agency determines that it should be denied. The 3-day period does not allow sufficient time for the agency to process the petition, notify the petitioner of its determination, and leave time in the comment period for the petitioner to submit comments.

To remedy this problem, § 553.19 is hereby amended to require that petitions for extensions of time be submitted not later than 10 days be-

fore the expiration of the comment period. This will provide time for agency action within the comment period, and for petitioners whose petitions are denied to submit comments, if they wish, before the comment period expires.

Since this amendment concerns agency procedure, notice and public procedure thereon are unnecessary, and it is effective upon publication in the *Federal Register* (2-5-71), with respect to all rulemaking notices issued subsequent to its publication.

Issued on February 2, 1971.

Douglas W. Toms,  
Acting Administrator.

**36 F.R. 2511**  
**February 5, 1971**



**PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES:  
MOTOR VEHICLE SAFETY STANDARDS**

**Statement of Policy: Action on Petitions for Reconsideration**

The Center for Auto Safety has submitted a petition for rulemaking requesting that the NHTSA amend 49 CFR Part 553, Rulemaking Procedures, to provide that NHTSA must respond to petitions for reconsideration within 60 days of the date the rule in question is published in the *Federal Register*. The Center cited the interval of 5 months and 19 days that elapsed before issuance of the recent action on petitions concerning Standard No. 208, Occupant Crash Protection, as an illustration of the need for such a rule.

The NHTSA does not agree that the elapsed interval in that case, in view of the complexity of the issues raised and the hundreds of pages of highly technical material submitted in the petitions, was unjustified. This agency does, however, recognize that the period of reconsideration is one of considerable uncertainty to interested parties, since the rule in question has been issued, the effective date is approaching, and active preparation for compliance presumably is underway.

It has been determined, therefore, that a statement of policy on this subject will be appropriate, for the guidance of all parties concerned. A period of 90 days from issuance of the rule will be the normal period for action on reconsideration. This period will allow only 60 days for agency action, which is considered the shortest

practicable period for the necessary steps: detailed review of the petitions, gathering of supplementary information as necessary, making basic technical and policy decisions, drafting of the action document, and review by responsible officials. Where that period is found insufficient, a *Federal Register* notice will be issued stating the date by which action is expected to be completed.

Accordingly, an Appendix is hereby added to 49 CFR Part 553, . . . .

*Effective date:* March 1, 1972. This statement is issued in the interest of orderly administration and public information. It shall not affect the validity of any rules hereafter issued by the National Highway Traffic Safety Administration, or the legal rights, duties, or liabilities of any persons pursuant to those rules.

This notice is issued under the authority of section 119 of the National Traffic and Motor Vehicle Safety Act, 15 U.S.C. 1407, and the delegation of authority at 49 CFR 1.51.

Issued on February 14, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 3632  
February 18, 1972**



**PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES**

Sections 553.31 and 553.35 of Title 49, Code of Federal Regulations, currently specify that petitions for rulemaking and for reconsideration of rules should be addressed to the Docket Room of the National Highway Traffic Safety Administration. To conform to internal NHTSA correspondence procedures, §§ 553.31 and 553.35 are hereby amended by changing the submission address to the general mailing address specified in § 551.33. For public information, the same address is added to § 553.19, *Petitions for extension of time to comment*.

The requirement of § 553.31(b)(1) that petitions for rulemaking be submitted in duplicate is unnecessary and inconsistent with agency policy with respect to other submissions, and is being deleted. As in the case of other petitions

and comments, it is requested but not required that 10 copies be submitted.

Accordingly, amendments are made to 49 CFR Part 553, *Rulemaking Procedures: Motor Vehicle Safety Standards*. . . .

Since this amendment concerns internal agency procedure, it is found that notice and public procedure thereon are unnecessary.

Effective date: May 23, 1973.

(Sec. 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1407; delegation of authority at 49 CFR 1.51)

Issued on April 13, 1973.

James E. Wilson  
Acting Administrator  
**38 F.R. 9824**  
**April 20, 1973.**





**PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES**

Parts 501, 551, and 553 of Title 49, Code of Federal Regulations, currently detail the delegated powers, general procedures, and rulemaking procedures utilized by the National Highway Traffic Safety Administration (NHTSA) to implement the National Traffic and Motor Vehicle Safety Act of 1966, Public Law 89-563. The Motor Vehicle Information and Cost Savings Act, Public Law 92-513, vests additional authority in the NHTSA. This amendment extends the applicability of Parts 501, 551, and 553 to the Cost Savings Act to establish uniform rulemaking procedures for both Acts.

Accordingly, amendments are made to 49 CFR, Part 501, "Organization and delegation of powers and duties", Part 551, "Procedural rules", and Part 553, "Rulemaking procedures: motor vehicle safety standards". . . .

Since this amendment relates to NHTSA organization, procedures, and practices, it is

found that notice and public procedure thereon are unnecessary.

Effective date: July 27, 1973. Because this notice is only an extension of existing procedures to new areas of jurisdiction, it is found that an immediate effective date is in the public interest.

(Secs. 9, Pub. L. 89-670, 80 Stat. 944, 49 U.S.C. 1657; 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; 102, 105, 201, 205, 302, and 408, Pub. L. 92-513, 86 Stat. 947, 15 U.S.C. 1912, 1915, 1941, 1945, 1962, and 1988; delegation of authority at 38 FR 12147).

Issued on July 23, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

**38 F.R. 20086**  
**July 27, 1973**



**PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES**

The purpose of this notice is to change the time specified, as an agency policy, for the NHTSA to act on petitions for reconsideration to 90 days from the closing date for the petitions.

On February 18, 1972, the NHTSA published a notice (37 FR 3632) adding an appendix to 49 CFR Part 553 that established an agency policy of responding to petitions for reconsideration within 90 days from publication of the final rule. The policy was instituted in order to remove some uncertainty as to the time when the agency would act on petitions following the issuance of a rule.

Since a period of 30 days from the issuance of a rule is allowed for the submission of petitions for reconsideration, the present policy allows only 60 days for the NHTSA to analyze the petitions and decide on, draft and have reviewed the appropriate response. It has become apparent that 60 days are not adequate time to complete this process. In conformance with the NHTSA's aim to specify a normal period for action on petitions for reconsideration, the period is being extended to 90 days from the closing date for petitions.

It has been determined that this is necessary to afford sufficient time for consideration of the petitions and the issuance of a response to the issues they raise.

As provided in the February 18, 1972 notice (37 FR 3632), where this period is found insufficient, a Federal Register notice will be issued stating the date by which action is expected to be completed.

Accordingly, the appendix to 49 CFR Part 553 is revised:

*Effective date:* April 25, 1974.

(Sec. 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1407); delegation of authority at 49 CFR 1.51)

Issued on April 22, 1974.

James B. Gregory  
Administrator

**39 F.R. 14593**  
**April 25, 1974**



# **PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES**

(Docket No. 75-17; Notice 2)

This notice amends title 49, Code of Federal Regulations, Part 553, *Rulemaking Procedures*, by deleting those sections of the part which set out procedures by which interested persons may petition the NHTSA to undertake rulemaking. These procedures have been incorporated in a new Part 552, *Petitions for Rulemaking, Defect, and Noncompliance Orders*, of Title 49, Code of Federal Regulations, published today in a separate notice.

The amendments provide that the National Highway Traffic Safety Administrator may initiate rulemaking on his own motion, on the recommendation of other agencies of the Federal Government, or on petition by any interested person after a determination in accordance with Part 552 that grant of the petition is advisable (§ 553.11).

The amendment also reverses the order of sections dealing with initiation of rulemaking and notice of proposed rulemaking, presently set out in sections 553.13 and 553.11, respectively, to more closely follow the chronology of the rulemaking process.

Only one comment, from American Motors Corporation, was received in response to the notice proposing these amendments (40 F.R. 25450, June 16, 1975). AMC asserted that the

language of the new section 553.11 could be misinterpreted to mean that recommendations from other Federal agencies would be treated as another form of petition for rulemaking, rather than as input to the Administrator in making a determination whether or not to commence rulemaking on his own motion. The NHTSA does not agree that the language of section 553.11 is subject to such an interpretation, as it neither expressly nor impliedly directs the Administrator to treat recommendations from other agencies as petitions. It merely continues the intent of the previous section 553.13 that the recommendations of other agencies may be considered by the Administrator in determining whether to initiate rulemaking proceedings in response to a petition from an interested party or on his own motion.

In light of the foregoing, 49 CFR Part 553, *Rulemaking Procedures*, is amended as follows:

*Effective date:* October 13, 1975.

(Sec. 119, Pub. L. 89-563, 50 Stat. 715-15 U.S.C. 1407); delegation of authority at 49 CFR 1.51.)

Issued on September 4, 1975.

James B. Gregory  
Administrator

40 F.R. 42015

September 10, 1975



**PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES****(Docket No. 75-17; Notice 1)**

On September 10, 1975, a notice was published amending 49 CFR Part 553, *Rulemaking Procedures*, to delete certain provisions of the regulation incorporated in a new Part 552, *Petitions for Rulemaking, Defect, and Noncompliance Orders*, published the same day (40 F.R. 42015). Section 553.35(a) refers to "petitions filed under § 553.31." However, the provisions of § 553.31 are now incorporated in 49 CFR Part 552. As a result, the notice amending Part 553 should have included an amendment to § 553.35(a) reflecting this change.

Accordingly, the phrase "petitions filed under § 553.31" in paragraph (a) of section 553.35 is changed to read "petitions filed under Part 552 of this chapter."

*Effective date:* November 14, 1975. Because this amendment clarifies a previous notice and imposes no additional burden on any person, it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1407); delegation of authority at 49 CFR 1.51.)

Issued on November 10, 1975.

James B. Gregory  
Administrator

**40 F.R. 53032**  
**November 14, 1975**





**PREAMBLE TO AMENDMENT TO PART 553—RULEMAKING PROCEDURES****(Docket No. 77-07; Notice 1)**

This notice requires persons who comment on Advance Notices of Proposed Rulemaking or Notices of Proposed Rulemaking and persons who submit Petitions for Reconsideration to limit the length of their written submissions to 15 pages. The 15-page limit will facilitate evaluation of submissions and encourage persons making submissions to detail their primary arguments in a succinct and concise manner.

Effective Date: November 14, 1977.

For Further Information Contact:

Bernard P. Klein  
Office of Chief Counsel  
National Highway Safety Administration  
100 Seventh Street, S.W.  
Washington, D.C. 20590  
(202-426-1840)

Supplementary Information: 49 CFR 553.21 sets forth the requirements for the contents of written comments which are submitted in response to Advance Notices of Proposed Rulemaking (ANPRM) and Notices of Proposed Rulemaking (NPRM). 49 CFR 553.35 sets forth the requirements for the contents of written statements accompanying Petitions for Reconsideration. The National Highway Traffic Safety Administration (NHTSA) hereby adopts a procedure, effective immediately, requiring the above submissions to be limited to 15 pages in length. Necessary attachments to the submissions may be appended without regard to the 15-page limit.

It has been the experience of NHTSA that submissions significantly longer than 15 pages generally contain repetitions and even extraneous sections, as well as sections more appropriately drafted in an appendix than in the body of the argument. Such drafting detracts from the logic and clarity of a submission, with the result that NHTSA has encountered difficulties in ascer-

taining the precise import of a comment or statement as well as difficulties in separating arguments from alleged facts. Administrative time is lost and the risk is created that valuable insight which could be provided by a submission escapes notice. It is expected that a clearer statement of the primary argument will aid the public in reviewing the docket. Additionally, it is reasonable to assume that the 15-page limit, by encouraging commenters and petitioners to detail their primary arguments in a succinct and concise fashion, will aid persons making submissions to NHTSA in identifying and expressing the more significant aspects of their communications.

It should be noted that this amendment does not limit the relevant data or supporting arguments that may be submitted by comment or petition for reconsideration, since necessary attachments may be appended to the submission without regard to the 15-page limit. Additionally, it is recognized that there may be instances where, because of the complexity of the subject matter, the 15-page limit would be an inappropriate restriction. The NHTSA may waive the 15-page limit or establish a different limit for a particular Federal Register notice. The waiver will be published in the notice to which it applies.

In consideration of the foregoing, 49 CFR 553 is amended to read as follows . . .

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; secs. 102, 201, 408, 501, Pub. L. 92-513, 86 Stat. 947, 15 U.S.C. 1912, 1914, 1988, 2001; delegation of authority at 49 CFR 1.50)

Issued on November 4, 1977.

Joan Claybrook  
Administrator  
**42 F.R. 58949**  
**November 14, 1977**



## PART 553—RULEMAKING PROCEDURES

### SUBPART A—GENERAL

#### § 553.1 Applicability.

This part prescribes rulemaking procedures that apply to the issuance, amendment, and revocation of rules pursuant to the National Traffic and Motor Vehicle Safety Act of 1966 and the Motor Vehicle Information and Cost Savings Act.

#### § 553.3 Definitions.

“Acts” means the National Traffic and Motor Vehicle Safety Act of 1966, Public Law 89-563, 15 U.S.C. 1391, et seq., and the Motor Vehicle Information and Cost Savings Act, Public Law 92-513, 15 U.S.C. 1901, et seq.

“Administrator” means the Administrator of the National Highway Traffic Safety Administration or a person to whom he has delegated final authority in the matter concerned.

“Rule” includes any order, regulation, or Federal motor vehicle safety standard issued under the Acts.

#### § 553.5 Regulatory docket.

(a) Information and data deemed relevant by the Administrator relating to rulemaking actions, including notices of proposed rulemaking; comments received in response to notices; petitions for rulemaking and reconsideration; denials of petitions for rulemaking and reconsideration; records of additional rulemaking proceedings under § 553.25; and final rules are maintained in the Docket Room, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590.

(b) Any person may examine any docketed material at the Docket Room at any time during regular business hours after the docket is established,

except material ordered withheld from the public under applicable provisions of the Acts and section 552(b) of Title 5 of the United States Code, and may obtain a copy of it upon payment of a fee.

#### § 553.7 Records.

Records of the National Highway Traffic Safety Administration relating to rulemaking proceedings are available for inspection as provided in section 552(b) of Title 5 of the United States Code and Part 7 of the Regulations of the Secretary of Transportation (49 CFR Part 7; 32 F.R. 9284 et seq.).

### SUBPART B—PROCEDURES FOR ADOPTION OF RULES

#### § 553.11 Initiation of rulemaking.

The Administrator may initiate rulemaking either on his own motion or on petition by any interested person after a determination in accordance with Part 552 of this title that grant of the petition is advisable. The Administrator may, in his discretion, also consider the recommendations of other agencies of the United States.

#### § 553.13 Notice of proposed rulemaking.

Unless the Administrator, for good cause, finds that notice is impracticable, unnecessary, or contrary to the public interest, and incorporates that finding and a brief statement of the reasons for it in the rule, a notice of proposed rulemaking is issued and interested persons are invited to participate in the rulemaking proceedings under applicable provisions of the Acts.

**§ 553.15 Contents of notices of proposed rulemaking.**

(a) Each notice of proposed rulemaking is published in the Federal Register, unless all persons subject to it are named and are personally served with a copy of it.

(b) Each notice, whether published in the *Federal Register* or personally served, includes—

(1) A statement of the time, place, and nature of the proposed rulemaking proceedings;

(2) A reference to the authority under which it is issued;

(3) A description of the subjects and issues involved or the substance and terms of the proposed rule;

(4) A statement of the time within which written comments must be submitted; and

(5) A statement of how and to what extent interested persons may participate in the proceeding.

**§ 553.17 Participation by interested persons.**

(a) Any interested person may participate in rulemaking proceeding by submitting comments in writing containing information, views or arguments.

(b) In his discretion, the Administrator may invite any interested person to participate in the rulemaking procedures described in § 553.25.

**§ 553.19 Petitions for extension of time to comment.**

A petition for extension of the time to submit comments must be received not later than 10 days before expiration of the time stated in the notice. The petitions must be submitted to: Administrator, National Highway Traffic Safety Administration, U.S. Department of Transportation, 400 Seventh Street, S.W., Washington, D. C. 20590. It is requested, but not required, that 10 copies be submitted. The filing of the petition does not automatically extend the time for petitioner's comments. Such a petition is granted only if the petitioner shows good cause for the extension, and if the extension is consistent with the public interest. If an extension is granted, it is granted to all persons, and it is published in the *Federal Register*.

**§ 553.21 Contents of written comments.**

[All written comments shall be in English. Unless otherwise specified in a notice requesting comments, comments may not exceed 15 pages in length, but necessary attachments may be appended to the submission without regard to the 15-page limit. Any interested person shall submit as a part of his written comments all material that he considers relevant to any statement of fact made by him. Incorporation by reference should be avoided. However, if incorporation by reference is necessary, the incorporated material shall be identified with respect to document and page. It is requested, but not required, that 10 copies of the comments and attachments, if any, be submitted. (42 F.R. 58949—November 14, 1977. Effective: 11/14/77)]

**§ 553.23 Consideration of comments received.**

All timely comments are considered before final action is taken on a rulemaking proposal. Late filed comments may be considered as far as practicable.

**§ 553.25 Additional rulemaking proceedings.**

The Administrator may initiate any further rulemaking proceedings that he finds necessary or desirable. For example, interested persons may be invited to make oral arguments, to participate in conferences between the Administrator or his representative and interested persons at which minutes of the conference are kept, to appear at informal hearings presided over by officials designated by the Administrator at which a transcript or minutes are kept, or participate in any other proceeding to assure informed administrative action and to protect the public interest.

**§ 553.27 Hearings.**

(a) Sections 556 and 557 of Title 5, United States Code, do not apply to hearings held under this part. Unless otherwise specified, hearings held under this part are informal, nonadversary, fact-finding proceedings, at which there are no formal pleadings or adverse parties. Any rule issued in a case in which an informal hearing is held is not necessarily based exclusively on the record of the hearing.

(b) The Administrator designates a representative to conduct any hearing held under this part. The Chief Counsel designates a member of his staff to serve as legal officer at the hearing.

#### **§ 553.29 Adoption of final rules.**

Final rules are prepared by representatives of the office concerned and the Office of the Chief Counsel. The rule is then submitted to the Administrator for his consideration. If the Administrator adopts the rule, it is published in the Federal Register, unless all persons subject to it are named and are personally served with a copy of it.

#### **§ 553.31 Reserved.**

#### **§ 553.33 Reserved.**

#### **§ 553.35 Petitions for reconsideration.**

[(a) Any interested person may petition the Administrator for reconsideration of any rule issued under this part. The petition shall be submitted to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. It is requested, but not required, that 10 copies be submitted. The petition must be received not later than 30 days after publication of the rule in the Federal Register. Petitions filed after that time will be considered as petitions filed under Part 552 of this chapter. The petition must contain a brief statement of the complaint and an explanation as to why compliance with the rule is not practicable, is unreasonable, or is not in the public interest. Unless otherwise specified in the final rule, the statement and explanation together may not exceed 15 pages in length, but necessary attachments may be appended to the submission without regard to the 15-page limit.

(b) If the petitioner requests the consideration of additional facts, he must state the reason they were not presented to the Administrator within the prescribed time.

(c) The Administrator does not consider repetitious petitions.

(d) Unless the Administrator otherwise provides, the filing of a petition under this section does not stay the effectiveness of the rule. (42 F.R. 58949—November 14, 1977. Effective: 11/14/77)]

#### **§ 553.37 Proceedings on petitions for reconsideration.**

The Administrator may grant or deny, in whole or in part, any petition for reconsideration without further proceedings. In the event he determines to reconsider any rule, he may issue a final decision on reconsideration without further proceedings, or he may provide such opportunity to submit comment or information and data as he deems appropriate. Whenever the Administrator determines that a petition should be granted or denied, he prepares a notice of the grant or denial of a petition for reconsideration, for issuance to the petitioner and issues it to the petitioner. The Administrator may consolidate petitions relating to the same rule.

#### **§ 553.39 Effect of petition for reconsideration on time for seeking judicial review.**

The filing of a timely petition for reconsideration of any rule issued under this part postpones the expiration of the 60-day period in which to seek judicial review of that rule, as to every person adversely affected by the rule. Such a person may file a petition for judicial review at any time from the issuance of the rule in question until 60 days after publication in the Federal Register of the Administrator's disposition of any timely petitions for reconsideration.

### **APPENDIX**

#### **Statement of Policy: Action on Petitions for Reconsideration**

It is the policy of National Highway Traffic Safety Administration to issue notice of the action taken on a petition for reconsideration within 90 days after the closing date for receipt

of such petitions, unless it is found impracticable to take action within that time. In cases where it is so found and the delay beyond that period is expected to be substantial, notice of that fact, and

the date by which it is expected that action will be taken, will be published in the Federal Register.

**32 F.R. 15818**

**November 17, 1967**

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## **PREAMBLE TO PART 554—STANDARDS ENFORCEMENT AND DEFECTS INVESTIGATION**

**(Docket No. 75-26; Notice 2)**

**ACTION:** Final Rule.

**SUMMARY:** This notice amends Title 49 of the Code of Federal Regulations by the addition of a new Part 554, "Standards Enforcement and Defects Investigation," to codify existing agency procedures with respect to noncompliance and defect investigations.

**EFFECTIVE DATE:** March 20, 1980.

**FOR FURTHER INFORMATION CONTACT:**

Roger Tilton, Office of Chief Counsel,  
National Highway Traffic Safety Adminis-  
tration, 400 Seventh Street, S.W.,  
Washington, D.C. 20590 (202-426-2993)

**SUPPLEMENTARY INFORMATION:**

A notice of proposed rulemaking to establish Part 554 was published in the Federal Register on September 30, 1975, (40 FR 44842). Ten comments were received from vehicle manufacturers and consumer groups. The National Motor Vehicle Safety Advisory Council did not take a position on the proposal. The Vehicle Equipment Safety Commission did not submit comments.

The NHTSA is adding Part 554 to Title 49 to combine and condense previously published policy directives (39 FR 1373, January 8, 1974; 38 FR 31460, November 14, 1973) and to modify its procedures somewhat, as contemplated by the Motor Vehicle and Schoolbus Safety Amendments of 1974 (Pub. L. 93-492, 88 Stat. 1470). This codification is intended to better inform interested persons of the agency's procedures.

The comments submitted in response to the notice of proposed rulemaking were generally in favor of this codification. Most commenters suggested minor changes, and many of the changes have been incorporated into the wording of the final rule.

American Motors Corporation (AMC), Grove Manufacturing Company, and International Harvester (IH) recommended that the scope of the investigatory powers described in section 554.4 be limited to protect the privacy of manufacturers. Section 112 of the Act prescribes the extent of the agency's powers of investigation, and these powers are not expanded, and cannot be, by virtue of this regulation. The purpose of Part 554 is merely to make public the procedures that the agency has employed in the past as authorized by section 112. In view of this limited role, a recitation of limits found in the statute is unnecessary.

The Center for Auto Safety requested that the agency change section 554.4 to amplify the fact that the five investigatory techniques detailed in that section are not the exclusive means available to the agency for pursuing an investigation. The agency agrees with this suggested modification. The enumerated investigatory techniques are only the major methods employed by the agency to pursue investigations. The agency modifies the language of the section to indicate that other investigatory means will be used where necessary.

IH and Recreation Vehicle Industry Association (RVIA) suggested changes to section 554.6. IH recommended written notification of a compliance test failure to an "appropriate designated contact." RVIA requested notification of the commencement of defect investigations as well as compliance test failures.

The notification provided in paragraph (b) is made only upon the finding of a compliance test failure. The NHTSA agrees with RVIA that manufacturers should be notified at the beginning of a defect investigation as well. Additionally, the agency understands the need for timely notification of noncompliance investigations. It has been the policy of the NHTSA to issue written notification

tion of the commencement of both defect and non-compliance investigations. The NHTSA, therefore, amends paragraph (b) of section 554.6 to provide for timely written notification to the manufacturer of defect and noncompliance investigations.

The agency always attempts to notify an appropriate official within the company. To require notification of an "appropriate designated contact" as suggested by IH would mean that each manufacturer would be required to file with the NHTSA the name of an individual to whom notification could be sent. Additionally, the manufacturer would need to update this filing whenever necessary. The agency concludes that this would be unnecessarily burdensome and, therefore, reserves the right to contact any person with the apparent authority to receive this notification. There has been no indication that notices to date have gone astray.

The Center for Auto Safety argued that paragraph (b) of section 554.7 should provide more specific criteria for the opening of a formal defects investigation. The NHTSA deems it unnecessary to be more specific about the pertinent criteria that warrant the commencement of an investigation. The decision to proceed with a defects investigation is based upon a careful analysis of a variety of data. These data differ from case to case. Offices within the agency exercise their collective judgment as to the necessity for an investigation, given the particular facts of any case. For this reason, the NHTSA concludes that modification of paragraph (b) is unnecessary.

IH and Ford suggested that the agency define the term "exempt material" in section 554.9 to avoid confusion. Additionally, they both recommended that the NHTSA clarify the section to indicate that the disclosure of exempt communications as well as all other exempt material would be prohibited.

The NHTSA utilizes a two-step approach to the disclosure of confidential material pertaining to safety-related defects and noncompliances. The agency first determines whether the information qualifies for confidential treatment under any statutory authority. Second, the agency exercises its discretion under paragraph (e) of section 112 of the National Traffic and Motor Vehicle Safety Act (the Act) whereby the NHTSA may disclose confidential material if relevant to any proceeding

undertaken pursuant to the Act. After determining relevance, the agency, under the authority granted in section 158 (a)(2)(B) of the Act, releases confidential information pertaining to safety-related defects and noncompliances only when deemed necessary by the agency. The agency is amending section 554.9, therefore, to indicate that any communication or part of a file pertaining to a safety-related defect or noncompliance that is considered confidential will not be disclosed unless that disclosure is deemed necessary.

Many commenters suggested changes to section 554.10. Rohr Industries and AMC recommended that the phrase "preliminary determination" be changed to "initial determination" to make it consistent with Part 556. The NHTSA agrees with this suggestion and amends the language accordingly to reflect this change.

IH and General Motors Corporation (GM) suggested that the proposed 30-day time limit would be insufficient to prepare for the hearing that follows an initial determination. The language of this section indicates that any time period is only an approximation of the date upon which a hearing normally would be scheduled. The NHTSA has decided that 30 days allows sufficient time to prepare for the hearing, since manufacturers are forewarned of an investigation at its initiation and can, at that time, commence planning to dispute agency findings. The agency will, however, amend section 554.10 to show that hearings are normally scheduled within 30 days of the initial determination but that the 30-day requirement can be extended by the Administrator for good cause shown.

Most commenters argued that section 554.10 should allow for cross-examination at the hearings as well as other more formal procedures. The NHTSA has carefully considered these and similar comments for this part and in other contexts in our regulations and concludes that the informal procedures, as authorized by Congress, do provide adequate opportunity for comment and presentation of facts.

AMC suggested that paragraph (e) of section 554.10 be deleted. They believe that the file should be closed once the Administrator finds that there is no noncompliance or safety-related defect. The Center for Auto Safety, on the other hand, requested that the agency amend paragraph (e) to allow any interested person to demand a public hearing once the Administrator has made his finding.



The purpose of paragraph (e) is to allow the Administrator to seek further public comments in those rare cases where further comment might add significant new data. Normally, the public meeting held prior to the determination will provide ample opportunity to comment. On those occasions when a public meeting is not held prior to a finding that a noncompliance or safety-related defect does not exist, the Administrator should be permitted, not required, to seek further information by way of a public meeting where, in his opinion, additional information would be useful. To preserve this discretion, the agency retains the paragraph as written and declines to adopt the suggested changes.

GM requested that section 554.11 be modified to state that a manufacturer can proceed to a district court to obtain a trial *de novo* of the Administrator's determination. Judicial review of agency decisions is granted by Congress. The National Traffic and Motor Vehicle Safety Act specifically enumerates the procedures available to manufacturers to review the agency's decisions. Regulations promulgated by the NHTSA can in no way expand or restrict the manufacturer's right to

seek judicial review. Since judicial review is a Constitutional guarantee with limited Congressional discretion to allocate it among the several courts, it would be inappropriate for the agency to proffer rules concerning this review.

Rohr Industries requested that the NHTSA change section 554.11 to require publication in the FEDERAL REGISTER of a finding that a defect or noncompliance does not exist. The agency agrees with Rohr's suggestion to publish the Administrator's finding and section 554.11 has been modified accordingly.

In consideration of the foregoing, Title 49, Code of Federal Regulations, is amended by the addition of a new Part 554 titled "Standards Enforcement and Defects Investigation," as set forth below.

Issued on February 11, 1980.

Joan Claybrook  
Administrator

**45 F.R. 10796**  
**February 19, 1980**



## PART 554—STANDARDS ENFORCEMENT AND DEFECTS INVESTIGATION

(Docket No. 75-26; Notice 2)

Sec.

- 554.1 Scope.
- 554.2 Purpose.
- 554.3 Application.
- 554.4 Office of vehicle safety compliance.
- 554.5 Office of defects investigation.
- 554.6 Opening an investigation.
- 554.7 Investigation priorities.
- 554.8 Monthly reports.
- 554.9 Availability of files.
- 554.10 Preliminary determinations and public meetings.
- 554.11 Final determinations.

### § 554.1 Scope.

This part establishes procedures for enforcing Federal motor vehicle safety standards, and associated regulations investigating possible safety-related defects, and making non-compliance and defect determinations.

### § 554.2 Purpose.

The purpose of this part is to inform interested persons of the procedures followed by the National Highway Traffic Safety Administration in order more fairly and effectively to implement National Traffic and Motor Vehicle Safety Act (the Act).

### § 554.3 Application.

This part applies to actions, investigations, and defect and non-compliance determinations of the National Highway Traffic Safety Administration under sections 109, 112, 124, 152, 156, 157, and 158 of the Act (15 U.S.C. 1398, 1401, 1411, 1412, 1416, 1417, 1418).

### § 554.4 Office of Vehicle Safety Compliance.

The Office of Vehicle Safety Compliance investigates compliance with Federal motor vehicle safety standards and associated regulations, and to this end may—

- (a) Verify that manufacturers certify compliance with all applicable safety standards;
- (b) Collect field reports from all sources;
- (c) Inspect manufacturers' certification test data and other supporting evidence, including dealer communications;
- (d) Inspect vehicles and equipment already in use or new vehicles and equipment at any stage of the manufacturing, distribution and sales chain;
- (e) Conduct selective compliance tests; and
- (f) Utilize other means necessary to conduct investigations.

### § 554.5 Office of Defects Investigation.

The Office of Defects Investigation conducts investigations to implement the provisions of the Act concerning the identification and correction of safety-related defects in motor vehicles and motor vehicle equipment. It elicits from every available source and evaluates on a continuing basis any information suggesting the existence of a safety-related defect.

### § 554.6 Opening an investigation.

- (a) A compliance or defect investigation is opened either on the motion of the Administrator or his delegate or on the granting of a petition of an interested party under Part 552 of this chapter.
- (b) A manufacturer is notified immediately by telephone of any compliance test failure in order to enable the manufacturer to begin his own investigation. Notification is sent by mail at the beginning of any defect or non-compliance investigation.

### § 554.7 Investigation priorities.

- (a) Compliance investigation priorities are reviewed annually and are set according to the following criteria:
  - (1) Prior compliance test data;

- (2) Accident data;
- (3) Engineering analysis of vehicle and equipment designs;
- (4) Consumer complaints; and
- (5) Market share.

(b) Defects inputs are reviewed periodically by an appropriate panel of engineers in consultation with the Office of Chief Counsel to determine whether a formal investigation should be opened by the Office of Defects Investigation.

#### **§ 554.8 Monthly reports.**

(a) *Compliance.* A monthly compliance report is issued which lists investigations opened, closed, and pending during that month, identifies compliance test reports accepted, and indicates how individual reports may be obtained.

(b) *Defects.* A monthly defects report is issued which lists investigations opened, closed, pending, and suspended during that month. An investigation may be designated "suspended" where the information available is insufficient to warrant further investigation. Suspended cases are automatically closed 60 days after appearing in a monthly report unless new information is received which justifies a different disposition.

#### **§ 554.9 Availability of files.**

All files of closed or suspended investigations are available for public inspection in the NHTSA Technical Reference Library. Communications between the agency and a manufacturer with respect to ongoing investigations are also available. Such files and communications may contain material which is considered confidential but has been determined to be necessary to the subject proceeding. Material which is considered confidential but has not been determined to be necessary to the subject proceeding will not be disclosed. Reproduction of entire public files or of individual documents can be arranged.

#### **§ 554.10 Initial determinations and public meetings.**

(a) An initial determination of failure to comply with safety standards or of a safety-related defect is made by the Administrator or his delegate based on the completed investigative file compiled by the appropriate office.

(b) The determination is communicated to the manufacturer in a letter which makes available all

information on which the decision is based. The letter advises the manufacturer of his right to present data, views and arguments to establish that there is no defect or failure to comply or that the alleged defect does not affect motor vehicle safety. The letter also specifies the time and place of a public meeting for the presentation of arguments or sets a date by which written comments must be submitted. Submission of all information, whether at a public hearing or in written form, is normally scheduled about 30 days after the initial determination. The deadline for submission of information can be extended by the Administrator for good cause shown.

(c) Public notice of an initial determination is made in a FEDERAL REGISTER notice that—

(1) Identifies the motor vehicle or item of equipment and its manufacturer;

(2) Summarizes the information upon which the determination is based;

(3) Gives the location of all information available for public examination; and

(4) States the time and place of a public meeting or the deadline for written submissions in which the manufacturer and interested persons may present data, views, and arguments respecting the determination.

(d) A transcript of the public meeting is kept and exhibits may be offered. There is no cross-examination of witnesses.

(e) If the Administrator makes a determination that a failure to comply or a safety-related defect does not exist he may, at his discretion in a particular case, within 60 days of the determination, invite interested persons to submit their views on the NHTSA investigation in a public meeting. Notice and procedures for such a meeting are as specified in paragraphs (c) and (d) of this section.

#### **§ 554.11 Final determinations.**

(a) The Administrator bases his final determination on the completed investigatory file and the data, views, and arguments submitted at the public meeting.

(b) If the Administrator determines that a failure to comply or a safety-related defect exists, he orders the manufacturer to furnish the notification specified in the Act and to remedy the defect or failure to comply.

(c) If the Administrator determines that a failure to comply or a safety-related defect does not exist, he so notifies the manufacturer and publishes this finding in the *Federal Register*.

(d) A statement of the Administrator's final

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determination and the reasons for it appears in each completed public file.

**45 F.R. 10796**

**February 19, 1980**



## PREAMBLE TO PART 555—TEMPORARY EXEMPTION FROM MOTOR VEHICLE SAFETY STANDARDS

(Docket No. 72-30; Notice 2)

This notice amends Title 49 of the Code of Federal Regulations by adding a new Part 555, "Temporary Exemption from Motor Vehicle Safety Standards," effective January 29, 1973. A notice of proposed rulemaking on this subject was published December 1, 1972 (37 F.R. 25533), and opportunity afforded for comment.

On October 25, 1972 P.L. 92-548 was enacted, amending section 123 of the National Traffic and Motor Vehicle Safety Act of 1966 to provide four bases upon which a manufacturer of motor vehicles might apply for a temporary exemption from one or more Federal motor vehicle safety standards. The legislative intent is clearly expressed as to the information required to substantiate an application on each basis. A discussion follows of each basis, the required information and the principal issues raised in response to the proposal.

1. *Substantial Economic Hardship.* A manufacturer whose total motor vehicle production in his most recent year of manufacture did not exceed 10,000 may petition for relief on grounds that compliance would cause him substantial economic hardship and that he has, in good faith, attempted to comply with the standards. Hardship exemptions are granted for periods not to exceed three years. Section 123 of the Act and the proposed regulations require an applicant to include in his petition a complete financial statement showing the basis of the economic hardship and a complete description of his good faith effort to comply with the standards. Although it was not required by the Act, the NHTSA also proposed to require a description of the steps a manufacturer proposes to take during the exemption period to achieve full compliance and the estimated date by which full compliance is to be achieved.

Submissions on the issue of economic hardship were received from Senator Warren Magnuson, Chairman of the Senate Committee on Commerce, the Public Interest Research Group, the Center for Auto Safety, Freightliner Corporation, and Lotus Cars, Ltd. Senator Magnuson and the Research Group have suggested that the NHTSA should adopt application guidelines modeled after those of the Environmental Protection Agency for requests for suspension of the effective date of motor vehicle emission standards. The Research Group has drafted a model application form using the EPA guidelines as a departure point. Senator Magnuson also suggested that cost data concerning the affected component should be required, as well as a chronological analysis by the petitioner of its efforts to comply with the standard following issuance of the notice of proposed rulemaking. Finally, he urged that a company be required to submit an analysis of the effects on its economic stability of the absence of an exemption. The Center for Auto Safety believes that all financial data should be presented in dollar figures. Lotus Cars, Ltd. suggested that, if a manufacturer has no plans to achieve conformity because the production run of a model is nearing its end, the regulations should specifically permit him to so state. Freightliner Corporation commented that hardship should be considered in relation to the total economic picture "including the purchaser" and the particular job a vehicle is intended to perform. It expressed fear that the legislation was not enacted with multi-stage manufacturers in mind. Freightliner appears to be concerned about hardship situations that may occur to manufacturers whose total annual volume exceeds 10,000 units and who are called upon to provide costly custom equipment.

In formulating the regulations for hardship applications the NHTSA has adopted many of the suggestions of Senator Magnuson and the Public Interest Research Group. Engineering and financial data that must be submitted with the application will include a list or description of each component that would have to be modified in order to achieve compliance, together with an itemization of the estimated cost to the petitioner to modify each such component if required to do so on an emergency basis, or at the end of one-, two-, and three-year periods. The manufacturer will also include what it estimates as the price increase per vehicle to balance the total costs incurred were it to achieve compliance, and a statement of the anticipated effect of the price increase. Corporate balance sheets for the three fiscal years immediately preceding the application must be submitted, as well as a projected balance sheet for the fiscal year following any denial of the petition. The financial data must be in dollar figures, as the Center for Auto Safety suggested. The manufacturer would also be allowed to discuss other hardship factors that a denial would cause, such as loss of market. In its description of compliance efforts a manufacturer will be required to submit a chronological analysis showing the relationship of those efforts to the rule-making history of the standard, and to discuss alternate means of compliance that may have been considered, and the reasons for the rejection of each. As proposed, a manufacturer must also describe the steps to be taken while the exemption is in effect to achieve full compliance, and the estimated date by which full compliance will be achieved.

The NHTSA did not adopt the format and informational content of the EPA guidelines for several reasons. There is a basic difference in the Clean Air Act and the Traffic Safety Act. Under the former, the public health is paramount. All motor vehicles must meet certain emission standards by the 1975 model year. A one-year suspension is possible, but only upon technological grounds, and not for economic hardship. Suspensions are granted on the basis of fulfilling four criteria—(1) that it is essential to the public interest and public health of the United States, (2) that all good faith efforts have been made to meet the established standards, (3)

that effective emission control technology is not available, or has not been available for a sufficient time to achieve compliance prior to the effective date of such standard and (4) that the study and investigation of the National Academy of Sciences and other available information has not indicated that technology or other alternatives are available to meet the emission standards. By the 1976 model year all vehicles will comply and no further suspension is possible. The proof to support an emission standard suspension thus differs substantially from that required for hardship. On the other hand, under the Traffic Safety Act, motor vehicle safety must be balanced with other factors of the public interest including the desirability of affording a continuing and wide choice of vehicles to meet differing needs, and encouraging the continuation of relatively small manufacturers. In some instances, the safety exemption sought may be limited in time and scope, and extensively detailed information such as EPA requires may be unnecessary to document the request.

With reference to the comments by Freightliner, the NHTSA does take into account the vehicle purchaser, in that it is concerned with the effect of a denial upon the availability of vehicles and their retail prices. Moreover, throughout its existence this agency has been aware of the problems of custom-truck manufacturers and has tried to accommodate them, consistent with considerations of motor vehicle safety.

*2. Other Bases for Exemption.* A manufacturer may apply for an exemption for a period not to exceed two years and covering up to 2,500 vehicles for any 12-month period that the exemption is in effect on any one of three additional bases: that it would assist in the development or field evaluation of new motor vehicle safety features, that it would assist in the development or field evaluation of a low-emission vehicle, or that, in the absence of an exemption, it would be unable to sell a motor vehicle whose overall level of safety is equivalent to or exceeds the overall level of safety of non-exempted motor vehicles. To substantiate the development of safety features, it was proposed that the applicant establish the innovational nature of the safety feature and that it would provide a level of safety at



least equivalent to the level of safety established in the standard from which exemption is sought. To substantiate the development of a low-emission vehicle, it was proposed that the applicant establish the emission feature of his vehicle and that an exemption would aid in its development as well as evidence that a temporary exemption would not unreasonably degrade the safety of the vehicle. Finally, to substantiate that failure to provide an exemption would prevent the sale of an otherwise safe vehicle, it was proposed that an applicant submit evidence that the vehicle could not otherwise be sold, and provide an analysis of how the vehicle provides an overall level of safety equal to or exceeding the overall level of safety of non-exempted vehicles.

The Public Interest Research Group again suggested that the proposal be amplified to provide guidelines similar to those of EPA, and supplied formats for each of the three bases. The NHTSA concurs with the Research Group to the extent that it has expanded the proposal so that the regulation includes some of the information and data suggested, but it has not adopted the format in detail, for the reasons previously discussed.

A manufacturer who wishes to develop or evaluate new safety features must document the innovative nature of the features. He must also submit an analysis establishing that the safety level provided by the feature equals or exceeds the level of safety established in the standard from which exemption is sought, including a description of how complying and non-complying vehicles differ, the results of tests that demonstrate performance which meets or exceeds the safety levels of the standard, and substantiation that a temporary exemption would facilitate the development or field evaluation of the vehicle. The manufacturer is also required to indicate his intent at the end of the exemption period to conform to the standard, or to petition for rulemaking to amend the standard so that the feature might be incorporated into it.

Somewhat similar information is required of a manufacturer who wishes to develop or evaluate a low-emission vehicle, although in this instance the NHTSA is also interested in a manufacturer's test results showing how far the vehicle

deviates from the standard, as part of the manufacturer's showing that the exemption would not unreasonably degrade the safety of the vehicle.

A manufacturer who petitions on the basis that the overall level of safety is equivalent to or exceeds the overall level of non-exempted vehicles must describe how exempted and non-exempted vehicles differ, describe safety features that the vehicle offers as standard equipment that are not required by the Federal standards, and submit both comparative test results showing how far the vehicle deviates from the standard, and the results of any tests showing that the vehicle exceeds the minimum requirements of any Federal standard. The manufacturer must also state whether he intends to comply at the end of the exemption period. Petitions for renewal of an exemption under each of these three bases are required to state the number of exempted vehicles sold in the United States under the prior exemption.

3. *Miscellaneous Comments.* The Public Interest Research Group and the Center for Auto Safety requested that § 555.7, *Processing of petitions*, be rewritten to include a provision for informal public hearings to be held at the discretion of the Administrator. Such a provision, in the opinion of the Research Group, "might well preclude protracted litigation by fully addressing issues in an informal public hearing." The requested provision has not been included in the final rule as it is considered unnecessary. Such a power is inherent in the Administrator's general powers and may be invoked in any appropriate occasions. It is not specifically required by the legislation, which deems notice and an opportunity to comment in writing a sufficient forum and means of assuring informed administrative action and of protecting the public interest.

The Center for Auto Safety requested that § 555.8, *Termination of temporary exemptions*, include a provision that the Administrator will entertain petitions for termination from interested persons. Although such a provision is not necessary since the agency would consider any information brought to its attention that is relevant to its regulatory functions, a section to this effect has been added for public information. It pro-

vides that petitions for termination of an exemption will be handled in accordance with the procedures of §§ 553.31 and .33 on petitions for rulemaking. The Center also asked whether the civil penalty provisions of section 109 could apply in the event it was determined that an exemption had been granted on the basis of fraudulent information. The NHTSA believes that civil penalties could apply in this instance, through the application of sections 108, 109, and 112. In addition, the general fraud provisions of 18 U.S.C. 1001 provide both criminal and civil penalties for submission of false information.

Senator Magnuson, Lotus, and the Research Group commented that the temporary exemption labels (§ 555.9) should include the title of the standard as a matter of clearer public disclosure. The comments have merit and the labels, both windshield and certification, must state the title of any exempted standard. The Research Group has further commented that the NHTSA has ignored the provision of Section 123(b) that written notification of the exemption be delivered to the dealer and first purchaser. The agency does not agree with the Research Group and believes that the windshield label constitutes written notification, fulfilling this discretionary requirement.

Finally, comments were addressed to the adequacy of § 555.10, *Availability for public inspection*. The NHTSA has adopted the Center for Auto Safety's comment that subsection (a) should be revised to provide availability of memoranda of all meetings held pursuant to § 555.7(a). However, the NHTSA has not agreed with the Center's suggestion that the agency commit itself

to make such memoranda available within a specified time limit "such as five working days". The agency will use its best efforts to place memoranda of this nature in the dockets as soon as practicable. The Center, Senator Magnuson, and the Research Group pointed out that Section 123(b) of the Act authorizes the Secretary to withhold only information "not relevant to the application for exemption". This agency concurs and minor rewording of § 555.10(b) clarifies this. Senator Magnuson encourages the agency "as a general policy, to release information contained in applications for exemptions on the basis that all such information is relevant to the application or it would not have been included by the manufacturer". The NHTSA agrees with this general policy. It will carefully scrutinize requests for confidential treatment of information and liberally interpret the relevancy of that information to the petition.

In consideration of the foregoing, Title 49 Code of Federal Regulations is amended by adding Part 555, *Temporary Exemption from Federal Motor Vehicle Safety Standards*, as set forth below.

*Effective date:* January 29, 1973.

(Sec. 3, Pub. L. 92-548, 86 Stat. 1159; Sec. 119, Pub. L. 89-563 (15 U.S.C. 1410, 1407), 80 Stat. 718; delegation of authority at 49 CFR 1.51)

Issued on January 22, 1973.

Douglas W. Toms  
Administrator

**38 F.R. 2693**  
**January 29, 1973**

# **PREAMBLE TO AMENDMENT TO PART 555—TEMPORARY EXEMPTION FROM MOTOR VEHICLE SAFETY STANDARDS**

**(Docket No. 72-30; Notice 4)**

This notice amends 49 CFR Part 555 to specify that the NHTSA will notify petitioners directly when their petitions are found not to contain required information, and that income statements must be included in support of hardship petitions.

The NHTSA proposed these amendments on October 29, 1973 (38 F.R. 29817). Interested persons have been offered an opportunity to participate in the making of the amendments and due consideration has been given to the two comments that were received in response to the notice.

A comment by H. E. Waterman of Bowie, Maryland, suggests that the agency adopt the essence of Federal Aviation Regulation § 11.25 *Petition for rulemaking or exemptions* to emphasize public interest factors, rather than the "private interests" of the petitioner. Mr. Waterman commented that "If an applicant considers his finances to be of interest relative to his petition, he should be given an opportunity to state his financial condition, but that should not be emphasized by establishment of such a requirement".

Mr. Waterman's comment is inapposite. The exemption authority of the Federal Aviation Administration is broader than that provided the NHTSA, and grant of exemption under FAR § 11.25 is not based specifically upon factors of substantial economic hardship. The NHTSA has concluded that it must request detailed financial data from hardship petitioners to assist it and the public in evaluating the merits of hardship claims, and it does not request such information of petitioners who file for exemption on other grounds.

Mr. Waterman's comment on public interest factors however is in point. In addition to finding that one of the four appropriate statutory bases for exemption is present, the Administrator must also make a finding that the exemption is in the public interest and consistent with the objectives of the National Traffic and Motor Vehicle Safety Act. The regulation currently does not specifically require the petitioner to submit public interest arguments, and the NHTSA believes that it should be amended to so provide. Accordingly § 555.5 *Petition for exemption* is being amended to require the petition to "contain any information, views, or arguments available to the petitioner as to why the granting of the petition would be in the public interest and consistent with the objectives of the Act".

American Motors commented that income statements and balance sheets are generally only part of a larger overall picture of the financial impact of compliance, and that to specifically require them might exclude the submission of other documents which could similarly describe the impact. It suggests amending the regulation to require only that the basis for an exemption for substantial economic hardship be fully documented.

The NHTSA does not consider its informational requirements restrictive and has not adopted the comments of American Motors. Section 556.(a)(1) contains a broad request for "engineering and financial information demonstrating in detail how compliance or failure to obtain an exemption would cause substantial economic hardship" which includes but is not limited to five specific categories of information, plus "(vi) A discussion of other hardships (e.g.

**Effective: March 15, 1974**

loss of market) that the petitioner desires the agency to consider".

In consideration of the foregoing, 49 CFR Part 555 is amended . . . .

*Effective date:* March 15, 1974.

(Sec. 3, Pub. L. 92-548, 86 Stat 1159, 15 U.S.C. 1410; sec. 119, Pub. L. 89-563, 80 Stat. 718, 15

U.S.C. 1407; delegation of authority at 49 CFR 1.51.)

Issued on February 7, 1974.

James B. Gregory  
Administrator

**39 F.R. 5489**

**February 13, 1974**

# **PREAMBLE TO AMENDMENT TO PART 555—TEMPORARY EXEMPTION FROM MOTOR VEHICLE SAFETY STANDARDS**

**(Docket No. 72-30; Notice 51)**

This notice amends 49 CFR Part 555 to specify that denials as well as grants are published in the *Federal Register*, and to clarify that the effective date of a temporary exemption is its date of publication in the *Federal Register* unless a later effective date is specified. The amendments also specify that an expiring exemption does not terminate during consideration of a petition for its renewal.

These amendments pertain to agency practice and are interpretative in nature. Accordingly, pursuant to 5 U.S.C. § 553(b), it has been found that no notice of proposed rulemaking is called for.

Section 555.7(a) is amended to specify that when the Administrator determines that a petition does not contain adequate justification and is denied, the petitioner is notified in writing and a notice of the denial is published in the *Federal Register*. Publication of denials has been an agency practice and the regulation is amended to reflect it.

A new subparagraph (f) is added to 49 CFR 555.7 to specify that the effective date of a temporary exemption is the date of publication of the notice of grant in the *Federal Register* unless a later effective date is specified. Interested persons have asked whether exemptions can be made effective as of the date of the filing of a petition for relief, or can include the total production of a model year that begins before the date an exemption is granted. This amendment is intended to clarify the agency's policy that exemptions should not have a retroactive effect which could serve to excuse manufacture of nonconforming

vehicles in violation of section 108(a)(1) of the National Traffic and Motor Vehicle Safety Act.

In section 555.8 the references to paragraph (c) in paragraphs (a) and (b) are changed to paragraph (d), to indicate that the cause of an early termination of an exemption by the Administrator is through administrative action (paragraph (d)), rather than through petition by interested persons (paragraph (c)). A new paragraph (c) is added to § 555.8, implementing the Administrative Procedure Act provision at 5 U.S.C. § 558(c), stating in effect that when a timely and sufficient application for renewal of a temporary exemption has been received before the exemption's termination date, the exemption does not expire until the Administrator grants or denies the petition for renewal. A timely application is one that is received not later than 60 days before the expiration of an exemption. A sufficient application is one that contains information required by § 555.5.

In consideration of the foregoing, 49 CFR Part 555 is amended. . . .

Effective date: November 24, 1974.

(Sec. 3, Pub. L. 92-548, 86 Stat. 1159, 15 U.S.C. 1410; sec. 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1407; delegation of authority at 49 CFR 1.51).

Issued on October 21, 1974.

James B. Gregory  
Administrator

**39 F.R. 37988**

**October 25, 1974**



# **PREAMBLE TO AMENDMENT TO PART 555—TEMPORARY EXEMPTION FROM MOTOR VEHICLE SAFETY STANDARDS**

**(Docket No. 73-20; Notice 6)**

This notice amends 49 CFR § 555.10(b) to clarify that information made available for public inspection shall include all submitted materials that are specifically required by § 555.6. The amendment is effective 30 days after publication in the *Federal Register*.

This amendment pertains to agency practice and is clarifying and interpretative in nature. Accordingly, pursuant to 5 U.S.C. 553(b), it is found that notice of proposed rulemaking is unnecessary.

Currently § 555.10(b) states that "Information made available for inspection shall not include materials not relevant to the petition that are to be withheld from the public in accordance with sections 112 and 113 of the Act (15 U.S.C. 1401, 1402) and section 552(b) of Title 5 of the United States Code."

Some petitioners for temporary exemptions on hardship grounds have requested that confidential treatment be given such items as estimated price increases that would be caused by compliance, projected balance sheets and income statements for the fiscal year following denial of a petition, or the efforts to be taken to achieve compliance while the exemption is in effect. The usual reason given is that the information could be harmful to the petitioner in the hands of its competitors. The NHTSA has uniformly denied

such requests if they involve materials that the regulation specifically requires to be submitted. These materials are necessary for a determination by the NHTSA of whether the statutory basis for exemption exists. This agency finds that all materials it requests pursuant to the regulation, and which are used in its own decisions, should be available for inspection in the docket by members of the public who wish to reach their own conclusion on the merits of the petition. Materials submitted gratuitously will, of course, be withheld from availability for inspection, if the petitioner requests it and if it is a matter that may be withheld in accordance with sections 112, 113, and 158 of the National Traffic and Motor Vehicle Safety Act.

In consideration of the foregoing, 49 CFR § 555.10(b) is amended. . . .

*Effective date:* May 30, 1975.

(Sec. 3, Pub. L. 92-548, 86 Stat. 1159, 15 U.S.C. 1410, sec. 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1407; delegation of authority at 49 CFR 1.51.)

Issued on April 24, 1975.

James B. Gregory  
Administrator

**40 F.R. 18789  
April 30, 1975**





**PREAMBLE TO AMENDMENT TO PART 555—TEMPORARY EXEMPTION FROM FEDERAL MOTOR VEHICLE SAFETY STANDARDS****(Docket 73-20; Notice 7)**

This notice amends 49 CFR Part 555 to reflect the fact that the Administrator considers petitions to modify exemptions.

On July 7, 1975, the Administrator published notice (40 F.R. 28504) of a petition by General Motors Corporation to modify the temporary exemption previously granted Motor Coach Industries, Inc. Under § 555.8(c) the Administrator may receive petitions to terminate temporary exemptions, and, under § 555.8(d), he may terminate them. The Administrator's power with respect to temporary exemptions necessarily includes modification of an exemption when to do so is in the public interest and consistent with the objectives of the National Traffic and Motor Vehicle Safety Act, or when the exemption is based upon misrepresentations. Accordingly, § 555.8(c) and § 555.8(d) are amended to reflect this fact. In addition, the section references to processing of petitions (§ 555.31, § 555.35) are changed to Part 552 to reflect recent amendments (40 F.R. 42014). A new paragraph

is added to specify that notices of termination or modification will appear in the Federal Register.

In consideration of the foregoing, in § 555.8 of Title 49, Code of Federal Regulations, paragraph (c) and the introductory phase of paragraph (d) are revised, and paragraph (f) is added. . . .

*Effective date:* September 10, 1975. Since the amendment reflects internal policy and procedure it may be made effective upon publication.

(Sec. 3, Pub. L. 92-548, 86 Stat 1159, 15 U.S.C. 1410, Sec. 119, Pub. L. 89-563, 80 Stat 718, 15 U.S.C. 1407; delegation of authority at 49 CFR 1.51.)

Issued on September 4, 1975.

James B. Gregory  
Administrator

**40 F.R. 42015**  
**September 10, 1975**



## PREAMBLE TO AN AMENDMENT TO PART 555—TEMPORARY EXEMPTION FROM MOTOR VEHICLE SAFETY STANDARDS

(Docket Nos. FE 76-04; Notice 5;  
FE 77-03, Notice 4; 80-21, Notice 1)

**ACTION:** Final Rule.

**SUMMARY:** This notice makes conforming amendments to several of the agency's regulations deleting specific requirements for confidentiality determinations. These conforming amendments are needed as a result of the publication today of a new agency regulation governing requests for confidentiality determinations (Part 512). Since that new regulation supercedes the confidentiality provisions existing in several of the agency's other regulations, these conforming amendments are being made without notice and opportunity for comment.

**EFFECTIVE DATE:** These amendments are effective April 9, 1981.

**FOR FURTHER INFORMATION CONTACT:**

Roger Tilton, Office of Chief Counsel,  
National Highway Traffic Safety Administration,  
400 Seventh Street, S.W.,  
Washington, D.C. 20590 (202-426-9511).

**SUPPLEMENTARY INFORMATION:** In accordance with the above, Title 49 of the Code of Federal Regulations is amended as follows.

Part 525, *Exemptions From Average Fuel Economy Standards*, is revised as follows:

(1) Section 525.6(g) (1) and (2) are deleted and replaced with the following:

(g) Specify and segregate any part of the information and data submitted under this part that the petitioner wishes to have withheld from public disclosure in accordance with Part 512 of this Chapter.

(2) Section 525.13 is deleted and section 525.12 is revised to read:

**§ 525.12 Public inspection of information.**

(a) Except as provided in paragraph (b), any person may inspect available information relevant to a petition under this Part, including the petition and any supporting data, memoranda of informal meetings with the petitioner or any other interested persons, and the notices regarding the petition, in the Docket Section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this paragraph in accordance with Part 7 of the regulations of the Office of the Secretary of Transportation (49 CFR Part 7).

(b) Except for the release of confidential information authorized by section 505 of the Act and Part 512 of this Chapter, information made available for public inspection does not include information for which confidentiality is requested under § 525.6(g) and is granted in accordance with Part 512 and sections 502 and 505 of the Act and section 552(b) of Title 5 of the United States Code.

Part 537, *Automotive Fuel Economy Reports*, is revised as follows:

(1) Section 537.5(c) (7) (i) and (ii) are deleted and replaced with the following:

(7) Specify any part of the information or data in the report that the manufacturer believes should be withheld from public disclosure as trade secret or other confidential business information in accordance with Part 512 of this Chapter.

(2) Section 537.12 is deleted and section 537.11 is revised to read:

**§ 537.11 Public inspection of information.**

(a) Except as provided in paragraph (b), any person may inspect the information and data submit-

ted by a manufacturer under this part in the docket section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this section in accordance with the regulations of the Secretary of Transportation in Part 7 of this title.

(b) Except for the release of confidential information authorized by section 505 of the Act and Part 512 of this Chapter, information made available under paragraph (a) for public inspection does not include information for which confidentiality is requested under § 537.5(c) (7) and is granted in accordance with Part 512 of this Chapter, section 505 of the Act, and section 552(b) of Title 5 of the United States Code.

Part 555, *Temporary Exemption From Motor Vehicle Safety Standards*, is revised as follows:

(1) Section 555.5(b) (6) is revised to read:

(6) Specify any part of the information and data submitted which petitioner requests be

withheld from public disclosure in accordance with Part 512 of this Chapter.

(2) Section 555.10(b) is revised to read:

(b) Except for the release of confidential information authorized by Part 512 of this Chapter, information made available for inspection under paragraph (a) shall not include materials not relevant to the petition for which confidentiality is requested and granted in accordance with sections 112, 113, and 158 of the Act (15 U.S.C. 1401, 1402, and 1418) and section 552(b) of Title 5 of the United States Code.

Issued on December 30, 1980.

Joan Claybrook  
Administrator

**46 F.R. 2063**  
**January 8, 1981**

## PART 555—TEMPORARY EXEMPTION FROM MOTOR VEHICLE SAFETY STANDARDS

**§ 555.1 Scope.** This part establishes requirements for the temporary exemption, by the National Highway Traffic Safety Administration (NHTSA), of certain motor vehicles from compliance with one or more Federal motor vehicle safety standards in accordance with section 123 of the National Traffic and Motor Vehicle Safety Act of 1966, 15 U.S.C. 1410.

**§ 555.2 Purpose.** The purpose of this part is to provide a means by which manufacturers of motor vehicles may obtain temporary exemptions from Federal motor vehicle safety standards on the bases of substantial economic hardship, facilitation of the development of new motor vehicle safety or low-emission engine features, or existence of an equivalent overall level of motor vehicle safety.

**§ 555.3 Application.** This part applies to manufacturers of motor vehicles.

### **§ 555.4 Definitions.**

“Administrator” means the National Highway Traffic Safety Administrator or his delegate.

“United States” means the several States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the Virgin Islands, the Canal Zone, and American Samoa.

### **§ 555.5 Petition for exemption.**

(a) A manufacturer of motor vehicles may petition the NHTSA for a temporary exemption from any Federal motor vehicle safety standard or for a renewal of any exemption on the bases of substantial economic hardship, facilitation of the development of new motor vehicle safety or low-emission engine features, or the existence of an equivalent overall level of motor vehicle safety.

(b) Each petition filed under this part for an exemption or its renewal must—

- (1) Be written in the English language;
- (2) Be submitted in three copies to:

Administrator, National Highway Traffic Safety Administration, Washington, D.C. 20590;

(3) State the full name and address of the applicant, the nature of its organization (individual, partnership, corporation, etc.) and the name of the State or country under the laws of which it is organized;

(4) State the number and title, and the text or substance of the standard or portion thereof from which the temporary exemption is sought, and the length of time desired for such exemption;

(5) Set forth the basis for the petition and the information required by § 555.6(a), (b), (c), or (d) as appropriate.

[(6) Specify any part of the information and data submitted which petitioner requests be withheld from public disclosure in accordance with Part 512 of this Chapter.

(7) Set forth the reasons why the granting of the exemption would be in the public interest and consistent with the objectives of the National Traffic and Motor Vehicle Safety Act.

(c) The knowing and willful submission of false, fictitious or fraudulent information will subject the petitioner to the civil and criminal penalties of 18 U.S.C. 1001. (46 F.R. 2063—January 8, 1981. Effective: April 9, 1981)]

### **§ 555.6 Basis for petition.**

(a) If the basis of the petition is substantial economic hardship the petitioner shall provide the following information.

(1) Engineering and financial information demonstrating in detail how compliance or failure to obtain an exemption would cause substantial economic hardship, including—

- (i) A list or description of each item of motor vehicle equipment that would have to be modified in order to achieve compliance;

(ii) The itemized estimated cost to modify each such item of motor vehicle equipment if compliance were to be achieved—

(A) As soon as possible,

(B) At the end of a one-year exemption period, (if the petition is for one year or more)

(C) At the end of a two-year exemption period, (if the petition is for two years or more)

(D) At the end of a three-year exemption period, (if the petition is for three years)

(iii) The estimated price increase per vehicle to balance the total costs incurred pursuant to subdivision (ii) of this subparagraph and a statement of the anticipated effect of each such price increase;

(iv) Corporate balance sheets and income statements for the three fiscal years immediately preceding the filing of the application;

(v) Projected balance sheet and income statement for the fiscal year following a denial of the petition; and

(vi) A discussion of any other hardships (*e.g.*, loss of market) that the petitioner desires the agency to consider.

(2) A description of its efforts to comply with the standards, including—

(i) A chronological analysis of such efforts showing its relationship to the rulemaking history of the standard from which exemption is sought;

(ii) A discussion of alternate means of compliance considered and the reasons for rejection of each;

(iii) A description of the steps to be taken, while the exemption is in effect, and the estimated date by which full compliance will be achieved either by design changes or termination of production of nonconforming vehicles; and

(iv) The total number of motor vehicles produced by or on behalf of the petitioner in the 12-month period prior to filing the petition, and

the inclusive dates of the period. (Section 123 of the Act limits eligibility for exemption on the basis of economic hardship to manufacturers whose total motor vehicle production does not exceed 10,000.)

(b) If the basis of the petition is the development or field evaluation of new motor vehicle safety features, the petitioner shall provide the following information:

(1) A description of the safety features, and research, development, and testing documentation establishing the innovational nature of such features,

(2) An analysis establishing that the level of safety of the features is equivalent to or exceeds the level of safety established in the standard from which exemption is sought, including—

(i) A detailed description of how a motor vehicle equipped with the safety features differs from one that complies with the standard;

(ii) If applicant is presently manufacturing a vehicle conforming to the standard, the results of tests conducted to substantiate certification to the standard; and

(iii) The results of tests conducted on the safety features that demonstrate performance which meets or exceeds the requirements of the standard.

(3) Substantiation that a temporary exemption would facilitate the development or field evaluation of the vehicle.

(4) A statement whether, at the end of the exemption period, the manufacturer intends to conform to the standard, apply for a further exemption, or petition for rulemaking to amend the standard to incorporate the safety features.

(5) A statement that not more than 2,500 exempted vehicles will be sold in the United States in any 12-month period for which an exemption may be granted pursuant to this paragraph. A petition for renewal of such an exemption shall also include the total number of exempted vehicles sold in the United States under the existing exemption.

(c) If the basis of the petition is the development or field evaluation of a low-emission vehicle, the petitioner shall provide—

(1) Substantiation that the motor vehicle is a low-emission vehicle as defined by section 123(g) of the Act.

(2) Research, development, and testing documentation establishing that a temporary exemption would not unreasonably degrade the safety of the vehicle, including—

(i) A detailed description of how the motor vehicle equipped with the low-emission engine would, if exempted, differ from one that complies with the standard;

(ii) If applicant is presently manufacturing a vehicle conforming to the standard, the results of tests conducted to substantiate certification to the standard;

(iii) The results of any tests conducted on the vehicle that demonstrate its failure to meet the standard, expressed as comparative performance levels; and

(iv) Reasons why the failure to meet the standard does not unreasonably degrade the safety of the vehicle.

(3) Substantiation that a temporary exemption would facilitate the development or field evaluation of the vehicle.

(4) A statement whether, at the end of the exemption period, the manufacturer intends to conform with the standard.

(5) A statement that not more than 2,500 exempted vehicles will be sold in the United States in any 12-month period for which an exemption may be granted pursuant to this paragraph. A petition for renewal of an exemption shall also include the total number of exempted vehicles sold in the United States under the existing exemption.

(d) If the basis of the petition is that the petitioner is otherwise unable to sell a motor vehicle whose overall level of safety is equivalent to or exceeds the overall level of safety of non-exempted motor vehicles, the petitioner shall provide—

(1) A detailed analysis of how the vehicle provides an overall level of safety equivalent to or exceeding the overall safety of non-exempted vehicles, including—

(i) A detailed description of how the motor vehicle, if exempted, differs from one that conforms to the standard;

(ii) A detailed description of any safety features that the motor vehicle offers as standard equipment that are not required by the Federal motor vehicle safety standards;

(iii) The results of any tests conducted on the vehicle demonstrating that it fails to meet the standard, expressed as comparative performance levels;

(iv) The results of any tests conducted on the vehicle demonstrating that its overall level of safety exceeds that which is achieved by conformity to the standards.

(v) Other arguments that the overall level of safety of the vehicle equals or exceeds the level of safety of non-exempted vehicles.

(2) Substantiation that compliance would prevent the sale of the vehicle.

(3) A statement whether, at the end of the exemption period, the manufacturer intends to comply with the standard.

(4) A statement that not more than 2,500 exempted vehicles will be sold in the United States in any 12-month period for which an exemption may be granted pursuant to this paragraph. A petition for renewal of any exemption shall also include the total number of exempted vehicles sold in the United States under the existing exemption.

#### § 555.7 Processing of petitions.

(a) The NHTSA publishes in the *Federal Register*, affording opportunity for comment, a notice of each petition containing the information required by this part. However, if the NHTSA finds that a petition does not contain the information required by this part, it so informs the petitioner, pointing out the areas of insufficiency and stating that the petition will not receive further consideration until the required information is submitted.

(b) No public hearing, argument or other formal proceeding is held directly on a petition filed under this part before its disposition under this section.

(c) Any interested person may, upon written request, appear informally before an appropriate official of the NHTSA to discuss a petition for

exemption or the action taken in response to a petition.

(d) If the Administrator determines that the petition does not contain adequate justification, he denies it and notifies the petitioner in writing. He also publishes in the *Federal Register* a notice of the denial and the reasons for it.

(e) If the Administrator determines that the petition contains adequate justification, he grants it, and notifies the petitioner in writing. He also publishes in the *Federal Register* a notice of the grant and the reasons for it.

(f) Unless a later effective date is specified in the notice of the grant, temporary exemption is effective upon publication of the notice in the *Federal Register* and exempts vehicles manufactured on and after the effective date.

#### § 555.8 Termination of temporary exemptions.

(a) A temporary exemption from a standard granted on the basis of substantial economic hardship terminates according to its terms but not later than 3 years after the date of issuance unless terminated sooner pursuant to paragraph (d) of this section.

(b) A temporary exemption from a standard granted on a basis other than substantial economic hardship terminates according to its terms but not later than 2 years after the date of issuance unless terminated sooner pursuant to subparagraph (d).

(c) Any interested person may petition for the termination or modification of an exemption granted under this part. The petition will be processed in accordance with the procedures of Part 552 of this chapter.

(d) The Administrator terminates or modifies a temporary exemption if he determines that—

(1) The temporary exemption is no longer consistent with the public interest and the objectives of the Act; or

(2) The temporary exemption was granted on the basis of false, fraudulent, or misleading representations or information.

(e) If a petition for renewal of a temporary exemption that meets the requirements of § 555.5 has been filed not later than 60 days before the termination date of an exemption, the exemption does not terminate until the Administrator grants or denies the petition for renewal.

(f) The Administrator publishes in the *Federal Register* a notice of

(i) a petition for termination or modification of an exemption and the action taken in response to it; and

(ii) any termination or modification of an exemption pursuant to the Administrator's own motion.

**§ 555.9 Temporary exemption labels.** A manufacturer of an exempted vehicle shall—

(a) Submit to the Administrator, within 30 days after receiving notification of the grant of an exemption, a sample of the certification label required by PART 567 of this chapter and paragraph (c) of this section;

(b) Affix securely to the windshield or side window of each exempted vehicle a label in the English language containing the statement required by paragraph (c) (1) or (c) (2) of this section, and with the words "SHOWN ABOVE" omitted.

(c) Meet all applicable requirements of Part 567 of this chapter, except that—

(1) Instead of the statement required by § 567.4(g) (5) the following statement shall appear: "THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE EXCEPT FOR STANDARDS NOS. [Listing the standards by number and title for which an exemption has been granted]. EXEMPTED PURSUANT TO NHTSA EXEMPTION NO. \_\_\_\_\_."

(2) Instead of the statement required by § 567.5(a) (7), the following statement shall appear: "THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT IN [Month, Year] EXCEPT FOR STANDARD NOS. [Listing the standards by number and title for which an exemption has been granted]. EXEMPTED PURSUANT TO NHTSA EXEMPTION NO. \_\_\_\_\_"



**§ 555.10 Availability for public inspection.**

(a) Information relevant to a petition under this part, including the petition and supporting data, memoranda of informal meetings with the petitioner or any other interested person, and the grant or denial of the petition, is available for public inspection, except as specified in paragraph (b) of this section, in the Docket Section, Room 5221, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. Copies of available information may be obtained, as provided in Part 7 of the regulations of the Office of the Secretary of Transportation (49 CFR Part 7).

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[(b) Except for the release of confidential information authorized by Part 512 of this Chapter, information made available for inspection under paragraph (a) shall not include materials not relevant to the petition for which confidentiality is requested and granted in accordance with sections 112, 113, and 158 of the Act (15 U.S.C. 1401, 1402, and 1418) and section 552(b) of Title 5 of the United States Code. (46 F.R. 2063—January 8, 1981. Effective: April 9, 1981)]

**38 F.R. 2693  
January 29, 1973**



# **PREAMBLE TO PART 556—EXEMPTION FOR INCONSEQUENTIAL DEFECT OR NONCOMPLIANCE**

**(Docket No. 75-21; Notice 2)**

This notice amends Title 49 of the Code of Federal Regulations to add Part 556, "Exemption for Inconsequential Defect or Noncompliance," which establishes procedures for petitioning by manufacturers for exemption from notice and remedy requirements of the National Traffic and Motor Vehicle Safety Act on grounds that a defect or noncompliance is inconsequential as it relates to motor vehicle safety.

A notice of proposed rulemaking to establish Part 556 was published in the *FEDERAL REGISTER* on August 25, 1975 (40 FR 37047). Fifteen comments were received from vehicle and equipment manufacturers and trade associations representing these groups. The National Motor Vehicle Safety Advisory Council did not take a position on the proposal. The Vehicle Equipment Safety Commission did not comment on the proposal.

The NHTSA is adding Part 556 to Title 49 to establish procedures that will implement the legislative mandate of section 157 of the National Traffic and Motor Vehicle Safety Act (the Act) (as amended by Pub. L. 93-492, 88 Stat. 1470, October 27, 1974; 15 U.S.C. 1417). The new regulation prescribes procedures for the submission of petitions, including filing time and petition content. Other provisions are included concerning the processing and disposition of petitions, meetings to present oral comments, and the rescission of exemptions.

Comments on the proposal were in agreement with the intent of the regulation. Several comments suggested modification of certain sections with respect to content and language.

International Harvester (IH) requested that the proposed language of sections 556.1 and 556.2 of Part 556 be modified to ensure that the re-

quirements for notification and remedy would be suspended pending a determination on the inconsequentiality petition.

It is the agency's view that the modifications recommended by IH are unnecessary. When the agency initially determines that a defect or noncompliance has occurred, it notifies the manufacturer who is provided a 30-day period in which to submit an inconsequentiality petition. The manufacturer's duty to notify and remedy does not become mandatory until the agency makes two final determinations: the first, that a noncompliance or defect in fact exists, and the second, that it is not inconsequential. These determinations are not made until after receipt of submissions, written and oral, from the manufacturer and other interested parties. Under Part 556, the agency would dispose of the petition for inconsequentiality concurrently with its final determination of a defect or noncompliance. Therefore, the notification and remedy provisions would never become effective until there has been a final determination of the petition for inconsequentiality.

When a manufacturer determines that a defect or noncompliance exists, on the other hand, he will be exempted temporarily from notice and remedy requirements until the NHTSA finally disposes of his petition for exemption. The agency interprets the requirement in the proposed amendment to Part 557 that manufacturers provide notification of a defect or noncompliance unless exempted by the Administrator pursuant to section 157 of the Act to mean that notification need not occur until after the disposition of an inconsequentiality petition.

Association Peugeot-Renault suggested that the phrase "has determined" in the first sentence of paragraph 556.4(a) be changed to "has finally

determined" for purposes of clarification. There is no distinction between these phrases with respect to manufacturer-initiated determinations of a defect or noncompliance. The distinction becomes meaningful only when the NHTSA makes an initial determination as opposed to a final determination. Therefore, the agency has decided to retain the language "has determined," since it is not ambiguous, and it is consistent with Parts 573 and 577.

Comments were received from American Motors Corporation (AMC), Volkswagen, Chrysler, General Motors (GM), and the Motor Vehicle Manufacturers Association (MVMA) requesting clarification of the use of the term "defect" in the regulation. These comments expressed the opinion that the legislative history of section 157 of the Act as well as other provisions of the Act clearly indicate that any defect requiring action must be related to motor vehicle safety.

The NHTSA agrees that the Act and its underlying history are directed to manufacturer responsibility for defects that relate to motor vehicle safety. In view of possible ambiguity in the use of the word "defect" alone, the qualifying words "related to motor vehicle safety" have been added throughout the regulation where appropriate.

The agency is modifying paragraph (b)(4) of section 556.4 to require submission of the number of motor vehicles or replacement equipment and the period in which they were produced for which an exemption is sought. This information is considered necessary and falls within the ambit of the proposal.

Several commenters suggested that the agency delete paragraph (c) of section 556.4, because 18 U.S.C. 1001 applies to all willful submissions of false information to any department or agency from any source, thereby making paragraph (c) redundant. The agency agrees that the reference to this criminal penalty is not necessary to the purpose of the regulation, and it is, therefore, deleted.

Many commenters requested a change in paragraph (d) of section 556.4. AMC, Chrysler, GM, and the MVMA all requested that the 15-day time limit on petitions be deleted. They argued that manufacturers should be able to petition

within a reasonable time after a defect is determined to exist as allowed in Part 577. This may not occur until after the final determination is made by the NHTSA.

The agency has concluded that the modification described above would unduly delay remedy of defects and noncompliances, as well as enforcement and compliance actions. The requested modification would allow a manufacturer to proceed through an agency-initiated defect determination, and then, within a reasonable time, petition for a determination of inconsequentiality. This serial procedure would be time-consuming and redundant, allowing potentially dangerous vehicles to go unremedied longer than necessary. It is true that Part 577 specifies notification of the public within a "reasonable time" (conforming to the requirements of § 153(b)(1) of the Act) in the case of a manufacturer's determination. Reasonable time is appropriate in the context of Part 577, since notification might need to be made to thousands of individuals. Part 556 requires only the filing of a single petition and, therefore, should be subject to a time limitation.

White Motor Company and IH proposed that the NHTSA define 15 days to mean 15 working days. Association Peugeot-Renault and Uniroyal, on the other hand, suggested that the agency extend the time limit to 30 days. Some commenters pointed out that the proposed requirement of receipt of the petition within 15 days might leave the manufacturer with only four working days to conduct tests and draft the petitions. After careful consideration, the NHTSA has decided to require petitions to be submitted within 30 days. This provides a reasonable limit on the time for filing a petition for exemption. Moreover, it assures that all submissions will be received prior to the meeting authorized under section 152(a) of the Act.

The MVMA and GM suggested that the language in paragraph (3)(i) of section 556.5 be changed for clarity. They argued that the wording of that paragraph indicates that a public meeting prior to the disposition of a petition for exemption is mandatory. Their modification would require someone to request a meeting before the NHTSA would establish a time and place for it.

This aspect of paragraph (3)(i) was proposed to allow the agency to publish the time and location of a meeting concurrently with the publication in the **FEDERAL REGISTER** of the manufacturer's petition for an inconsequentiality determination. Since issuance of the proposal, the agency has had more experience with section 157 petitions. To date meetings have not been required for disposition of these petitions. Therefore, the final rule incorporates the language suggested by the MVMA and GM to establish that public meetings will be held "upon request of the petitioner or interested persons."

Many commenters requested that paragraph (a)(3)(ii) of section 556.5 be amended to allow the manufacturer to choose to have a meeting on the inconsequentiality petition that is separate from a meeting held pursuant to section 152(a) of the Act. These commenters believe that prejudice may result if they are required to argue simultaneously that no defect or noncompliance exists and that any defect or noncompliance that may be found is inconsequential.

The language of section 556.4 paragraph (d) was intended to ensure that a petition for inconsequentiality would not constitute a concession of the existence of a defect. Consideration of the petition at the section 152(a) meeting is analogous to the consideration of more formal alternative pleadings in other legal forums. Separate hearings or meetings are not held merely because there exist two alternative defenses. Therefore, the agency does not agree that the consolidation of the two arguments would result in prejudice. Accordingly, the request for separate meetings is denied.

Several comments were made concerning a modification of section 556.6 to require formal adversarial hearings. The meetings proposed by the agency are fact-finding, not adversarial. The purpose of the meetings is to yield further information to facilitate the decision-making process. The informal meeting process is less time-consuming than adversarial proceedings and it yields equally reliable factual information. Further, Congress has authorized the agency in section 157 of the Act to proceed informally. The agency will retain, therefore, the informal meeting procedure.

Association Peugeot-Renault would delete the last sentence in paragraph (b) of section 556.6. They believed that a decision made by the NHTSA on an inconsequentiality petition should be based entirely upon matters covered at a meeting. The agency does not agree. These meetings serve to gather information. They are a supplement to other sources of information utilized by the NHTSA. Decisions must be based upon thorough consideration of all information received from all sources.

The NHTSA in deciding section 157 petitions has afforded an opportunity for manufacturers to appeal the denial of an exemption based upon inconsequentiality of defect or noncompliance. The agency intends to continue this process and, in addition, to allow any interested person to appeal the grant or denial of an exemption by submitting written data, views, or arguments. To reflect this policy, the agency modifies the proposed section 556.7 to allow an appeal procedure within the agency.

Several commenters requested minor modifications of section 556.8. GM suggested that the agency publish guidelines to establish procedures for rescission of an exemption. The agency concludes that the section provides sufficient guidelines for the rescission process. No rescission will be made prior to the receipt of new data and notice and opportunity to comment thereon. In the unlikely circumstance that procedure proves to be insufficient, future opportunity exists for a revision of the procedures. A minor modification of the wording of section 556.8 is made for clarity.

AMC, MVMA, and GM suggested that the agency amend section 556.9 to state that confidential material would not be subject to public inspection. The agency has determined that this modification is unnecessary. Section 112 paragraph (e) of the Act defines the limits for the release of confidential material. A repetition of this restriction in Part 556 would be redundant.

In accordance with recently enunciated Department of Transportation policy encouraging adequate analysis of the consequences of regulatory action (41 FR 16200; April 16, 1976), the agency herewith summarizes its evaluation of the eco-

nomie and other consequences of this action on the public and private sectors, including possible loss of safety benefits. Since this part is merely procedural and fulfills the mandate of section 157 of the Act, there will be at most minimal costs associated with its implementation and no loss of safety benefits.

In consideration of the foregoing, Title 49, Code of Federal Regulations, is amended by the addition of a new Part 556 titled "Exemption for Inconsequential Defect or Noncompliance."

*Effective date:* March 9, 1977.

(Sec. 102, Pub. L. 93-492, 88 Stat. 1470 (15 U.S.C. 1417); delegation of authority at 49 CFR 1.50.)

Issued on January 31, 1977.

John W. Snow  
Administrator

**42 F.R. 7145**  
**February 7, 1977**

## PART 556—EXEMPTION FOR INCONSEQUENTIAL DEFECT OR NONCOMPLIANCE

### Sec.

#### 556.1 Scope.

#### 556.2 Purpose.

#### 556.3 Application.

#### 556.4 Petition for exemption.

#### 556.5 Processing of petition.

#### 556.6 Meetings.

#### 556.7 Disposition of petition.

#### 556.8 Rescission of exemption.

#### 556.9 Public inspection of relevant information.

AUTHORITY: Sec. 157, Pub. L. 93-492, 88 Stat. 1470 (15 U.S.C. 1417), delegation of authority at 49 CFR 1.50.

#### § 556.1 Scope.

This part sets forth procedures, pursuant to section 157 of the Act, for exempting manufacturers of motor vehicles and replacement equipment from the Act's notice and remedy requirements when a defect or noncompliance is determined to be inconsequential as it relates to motor vehicle safety.

#### § 556.2 Purpose.

The purpose of this part is to enable manufacturers of motor vehicles and replacement equipment to petition the NHTSA for exemption from the notification and remedy requirements of the Act due to the inconsequentiality of the defect or noncompliance as it relates to motor vehicle safety, and to give all interested persons an opportunity for presentation of data, views, and arguments on the issue of inconsequentiality.

#### § 556.3 Application.

This part applies to manufacturers of motor vehicles and replacement equipment.

#### § 556.4 Petition for exemption.

(a) A manufacturer who has determined the existence, in a motor vehicle or item of replace-

ment equipment that he produces, of a defect related to motor vehicle safety or a noncompliance with an applicable Federal motor vehicle safety standard, or who has received notice of an initial determination by the NHTSA of the existence of a defect related to motor vehicle safety or a noncompliance, may petition for exemption from the Act's notification and remedy requirements on the grounds that the defect or noncompliance is inconsequential as it relates to motor vehicle safety.

(b) Each petition submitted under this part shall—

(1) Be written in the English language;

(2) Be submitted in three copies to: Administrator, National Highway Traffic Safety Administration, Washington, D.C. 20590;

(3) State the full name and address of the applicant, the nature of its organization (e.g., individual, partnership, or corporation) and the name of the State or country under the laws of which it is organized.

(4) Describe the motor vehicle or item of replacement equipment, including the number involved and the period of production, and the defect or noncompliance concerning which an exemption is sought; and

(5) Set forth all data, views, and arguments of the petitioner supporting his petition.

(c) In the case of defects related to motor vehicle safety or noncompliances determined to exist by a manufacturer, petitions under this part must be submitted not later than 30 days after such determination. In the case of defects related to motor vehicle safety or noncompliances initially determined to exist by the NHTSA, petitions must be submitted not later than 30 days after notification of the determination has been received by the manufacturer. Such a petition will not constitute a concession by the manufac-

turer of, nor will it be considered relevant to, the existence of a defect related to motor vehicle safety or a nonconformity.

#### **§ 556.5 Processing of petition.**

(a) The NHTSA publishes a notice of each petition in the FEDERAL REGISTER. Such notice includes:

(1) A brief summary of the petition;

(2) A statement of the availability of the petition and other relevant information for public inspection; and

(3)(i) In the case of a defect related to motor vehicle safety or a noncompliance determined to exist by the manufacturer, an invitation to interested persons to submit written data, views, and arguments concerning the petition, and, upon request by the petitioner or interested persons, a statement of the time and place of a public meeting at which such materials may be presented orally if any person so desires.

(ii) In the case of a defect related to motor vehicle safety or a noncompliance initially determined to exist by the NHTSA, an invitation to interested persons to submit written data, views, and arguments concerning the petition or to submit such data, views, and arguments orally at the meeting held pursuant to section 152(a) of the Act following the initial determination, or at a separate meeting if deemed appropriate by the agency.

#### **§ 556.6 Meetings.**

(a) At a meeting held under this part, any interested person may make oral (as well as written) presentations of data, views, and arguments on the question of whether the defect or noncompliance described in the FEDERAL REGISTER notice is inconsequential as it relates to motor vehicle safety.

(b) Sections 556 and 557 of Title 5, United States Code, do not apply to any meeting held under this part. Unless otherwise specified, any meeting held under this part is an informal, nonadversary, fact-finding proceeding, at which there are no formal pleadings or adverse parties. A decision to grant or deny a petition, after a meeting on such petition, is not necessarily based exclusively on the record of the meeting.

(c) The Administrator designates a representative to conduct any meeting held under this part. The Chief Counsel designates a member of his staff to serve as legal officer at the meeting. A transcript of the proceeding is kept and exhibits may be kept as part of the transcript.

#### **§ 556.7 Disposition of petition.**

Notice of either a grant or denial of a petition for exemption from the notice and remedy requirements of the Act based upon the inconsequentiality of a defect or noncompliance is issued to the petitioner and published in the FEDERAL REGISTER. The effect of a grant of a petition is to relieve the manufacturer from any further responsibility to provide notice and remedy of the defect or noncompliance. The effect of a denial is to continue in force, as against a manufacturer, all duties contained in the Act relating to notice and remedy of the defect or noncompliance. Any interested person may appeal the grant or denial of a petition by submitting written data, views, or arguments to the Administrator.

#### **§ 556.8 Rescission of decision.**

The Administrator may rescind a grant or denial of an exemption issued under this part any time after the receipt of new data and notice and opportunity for comment thereon, in accordance with § 556.5 and § 556.7.

#### **§ 556.9 Public inspection of relevant information.**

Information relevant to a petition under this part, including the petition and supporting data, memoranda of informal meetings with the petitioner or any other interested person concerning the petition, and the notice granting or denying the petition, are available for public inspection in the Docket Section, Room 5108, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. Copies of available information may be obtained in accordance with Part 7 of the regulations of the Office of the Secretary of Transportation (49 CFR Part 7).

42 F.R. 7147  
February 7, 1977



## PREAMBLE TO PART 557—PETITIONS FOR HEARINGS ON NOTIFICATION AND REMEDY OF DEFECTS

(Docket No. 75-31; Notice 2)

This notice amends Chapter V of Title 49 of the Code of Federal Regulations by the addition of a new Part 557, *Petitions for Hearings on Notification and Remedy of Defects*, governing petitions for hearings on whether or not a manufacturer has reasonably met its obligation to notify owners, dealers, and purchasers of a safety-related defect or noncompliance with a safety standard, or to remedy the defect or noncompliance. The new part also specifies the procedures to be followed in holding such a hearing.

The NHTSA proposed the regulation (40 FR 56926, December 5, 1975) to carry out a statutory provision concerning the hearing. Section 156 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1416) provides that "[u]pon petition of any interested person or on his own motion, the Secretary may hold a hearing in which any interested person (including a manufacturer) may make oral (as well as written) presentations of data, views, and arguments on the question of whether a manufacturer has reasonably met his obligation to notify under section 151 or 152, and to remedy a defect or failure to comply under section 154." Sections 151 and 152 require a manufacturer to notify owners, dealers, and purchasers of a safety-related defect or failure to comply with an applicable Federal motor vehicle safety standard in any motor vehicle or item of equipment manufactured by him. Section 154 requires a manufacturer to remedy without charge such defects or failures to comply. Section 156 also provides that

[i]f the Secretary determines the manufacturer has not reasonably met such obligation, he shall order the manufacturer to take specified action to comply with such obligation; and in addition, the Sec-

retary may take other action authorized by this title.

Five comments were received from private persons, five comments were received from manufacturers and trade associations, and two comments were received from consumer groups; the Consumer Protection Division of the County Manager's Office for Metropolitan Dade County; and the Center for Auto Safety (the Center). The National Motor Vehicle Safety Advisory Council did not take a position on the proposal. The Vehicle Equipment Safety Commission did not comment on the proposal.

Four of the comments received from private persons objected to the institution of hearings as meaningless or a waste of money. The fifth private party supported issuance of the regulation. The four commenters appeared to be unaware of the provision for these hearings mandated by section 156 of the Act, independent of the promulgation of Part 557. The agency does believe that the informal hearing minimizes the expense that will be involved in fulfilling this statutory mandate.

Walker Manufacturing objected that permitting "[a]ny interested person" to file a petition would invite spurious requests whose pursuit would be a waste of time and money. The agency conformed to the statutory language of section 156 that "any interested person" can petition for this hearing, and concludes that a narrowing of the language would be contrary to the intent of Congress in establishing the right.

The Consumer Protection Division for Metropolitan Dade County suggested that the Consumer Product Safety Commission (CPSC) would be a more suitable agency with which to vest this hearing procedure, because of better public identification with its consumer protection role. However, the jurisdiction of the CPSC

under the Consumer Product Safety Act (15 U.S.C. 2051, et seq.) does not include motor vehicles or motor vehicle equipment (15 U.S.C. 2052), and the authority to carry out section 156 is vested in the Department of Transportation.

Firestone Tire and Rubber Company suggested that the hearing procedure could be consolidated with the hearing procedures set forth in Part 552 (*Petitions for Rulemaking, Defect, and Non-compliance Orders*) of NHTSA regulations (49 CFR Part 552). Part 552 addresses the procedures that arise from a request for the initiation of agency action in a rulemaking defect, or non-compliance area. Unlike those situations, Part 557 addresses the different and more limited considerations of an evaluation of an ongoing action undertaken by persons outside the agency. The separation of these functions into different procedural regulations clarifies these distinct functions. Accordingly, the agency declines to adopt the Firestone suggestion.

The Center appeared to misunderstand why minimum qualification requirements were established for hearing petitions. The regulation states that, to be considered as a petition, a document must be written in English, have the word "petition" preceding its text, request a hearing, and contain a brief statement of the alleged failure and a summary of the data, views, or arguments that would be presented at the hearing. Reasonable considerations underlie these minimum qualification requirements. For example, the agency undertakes to respond to such petitions within 60 days, and the agency must be able to recognize a document as a petition if the writer wishes to have it treated as such. This is the basis for requiring that the word "petition" appear. The Center's request that the specifications be relaxed to recognize as petitions filings in Spanish as well as English from the Commonwealth of Puerto Rico and the Canal Zone does not detract from the intent of the qualification requirements, and the final regulation is accordingly modified.

The Center's more basic objection is that persons effectively will not be on notice that a request for a hearing must conform to the requirements of Part 557 to be treated as a petition. While it is true that it must so conform to achieve petition status (entitling it to a reply within 60

days), it is not true that a non-conforming request would not result in the calling of a hearing. Any complaint, request, or series of them, can result in the calling of a hearing on the Administrator's own motion. The Administrator is not precluded from deciding to hold a hearing simply because a person's complaint does not qualify as a petition. Thus, the agency disagrees with the Center's conclusion that Part 557 "denies an owner the right to a hearing unless he or she follows the regulation in every detail."

For this reason, the agency does not consider necessary the Center's request for an amendment of the newly revised Part 557 (dealing with notification of safety-related defects or noncompliances) to include the detailed specifications for the content of a Part 557 petition. It is noted that the agency is unaware of any supplemental submission by the Center to the docket on revision of Part 557, either at the time the comments on that docket were evaluated, or as of this date. With regard to the Center's suggestion that each complainant be advised by return mail to re-submit any request for a hearing in the proper format, it is just this sort of response the agency intends to avoid by its flexible approach.

In a related matter, the Dade County Manager's office believed that a lawyer would be required to draft the petition specified by § 557.4. This is not the case. A normal letter format, preceded by the word "petition" and containing the petitioner's complaint and its reasons for the complaint are all that is required. In response to the point that every complaint should not precipitate a hearing, it is simply noted that the grant of a petition is within the discretion of the Administrator under the statute, as set forth in § 557.6 of the new regulation.

Section 557.6 of the regulation sets forth the factors considered by the Administrator in determining whether to hold a hearing. The factors listed are: the nature of the complaint; the seriousness of the alleged breach of obligation to remedy; the existence of similar complaints; and the ability of the NHTSA to resolve the problem without holding a hearing. The Center considered the first factor (the nature of the complaint) to be meaningless, and suggested its clarification or deletion.

Stating the nature of the complaint is deemed necessary to allow NHTSA to judge whether the issues of fact or opinion are of a type that could be resolved by a hearing. In those cases where facts or engineering considerations are not at issue and only a policy decision remains to be made, the Administrator could make his finding without holding a hearing. A related factor (listed as § 557.6(a)(1)) is the NHTSA's ability to resolve a particular complaint without a hearing. Such a case would be when factual issues are in dispute, but the facts are already gathered. The agency therefore disagrees with the Center's assessment of § 557.6(a)(1) and declines to modify it or delete it.

The Center viewed the second factor listed in § 557.6 (the seriousness of the alleged breach of obligation to remedy) as impermissibly vague also. The Center's submission implies that only two types of "breach of obligation" exist: failure to repair and refusal to remedy without charge. In fact, every conceivable type of "alleged breach of obligation" exists, all with differing levels of seriousness. For example, in a recall to replace seat belts, an owner could object that a shortage of red seat belts resulted in installation of black seat belts in place of what had been originally fitted. Another example would be a failure of a notification letter to list the correct address of the dealer that will undertake a particular repair. The agency needs to exercise its discretion in such cases to decide whether the gravity of the objection merits a public hearing.

The Center also argued that § 557.6(4) (the ability of the NHTSA to resolve a problem without holding a hearing) constitutes an impermissible "escape hatch" from agency responsibilities. This comment ignores the language of the Act. Section 156 states that the Secretary "may hold a hearing," a statutory grant of discretion now properly reflected in the implementing regulation, and intended to expedite the agency's decisions in the public interest, not avoid them.

The Recreation Vehicle Industry Association (RVIA) requested that the information presented to the NHTSA in accordance with Part 573 (Defect Reports) be listed as a specific factor to be considered in deciding whether to hold a public hearing. The RVIA appears to be re-

questing that a particular body of information be singled out for review in reaching the decision. Of course, all information related to the case will enter into the decision, but the agency has sought to list in § 557.6 factors other than the information itself that would enter into the decision whether or not a hearing is necessary. This decision is separate from the decision of the adequacy of the notification and remedy itself. For this reason, the RVIA suggestion is not adopted.

The RVIA asked that a manufacturer be advised to the receipt of a petition and its eventual disposition. American Motors Corporation (AMC) also requested notification of receipt. The agency considers these requests reasonable, and will provide in its administrative practices for a copy of the petition acknowledgment and decision letters to be sent to the manufacturer involved.

Section 557.6 provides that the Administrator shall grant or deny the petition in time to notify the petitioner within 60 days of receipt of the petition. The Center argued for a 30-day limit, arguing that a longer period would necessarily have serious safety consequences in every case. The agency does not agree with this view. First, the decision on whether or not to hold a hearing is not the fundamental question of whether or not the manufacturer has taken the steps required of it by the statute. Also, the significance of the alleged failure to adequately meet responsibilities will vary from case to case, justifying differing periods of time in which to reach a decision. Finally, the 60-day period is a maximum, and a decision in situations in which significant safety gains are made by quick action can be made sooner. For these reasons, the Center's suggestion is not adopted.

The Center also believed that immediate publication of the reasons for denial of a petition would be necessary and desirable. The agency knows no reason why this would be the case, but rather concludes that notice to the petitioner within the allotted period is the significant step in the case of a denial. The publication only serves as a record function. Experience with a similar publication schedule for denial of rule-making petitions has been satisfactory.

The Center further suggested that all hearings be conducted within 30 days of the decision to grant a hearing, and that a final decision on the adequacy of notification or remedy be made within 30 days of the hearing. The agency intends to schedule hearings within a reasonable time after the petition is granted, but is unable to assure that a hearing can always be held within a 30-day period. As for the request that a decision be reached within 30 days of the hearing, the agency relies on information other than that presented at the hearing and is not able to state unequivocally that the hearing will produce the information necessary to reach a decision within 30 days of holding the hearing. Accordingly, the Center's suggestions are not adopted.

Section 557.7 of the regulation sets forth the nature of the public hearing that is contemplated by the regulation. The section provides for submission of views orally or in writing, the maintenance of a transcript and exhibits, and the presence in some cases of a legal officer. The RVIA, AMC, and International Harvester Company (IH) asked that the informal non-adversarial hearings be revised to permit cross-examination of those who appear by those who disagree with them. IH also asked that, upon agreement of the petitioner and the manufacturer involved, the hearing be modified to conform to the adjudicatory specifications of sections 556 and 557 of the Administrative Procedures Act.

The agency will take into consideration these requests for possible future action. At this time, the NHTSA wishes to conform its regulation to the scope expressed in the proposal. The matter of upgrading hearings to a more adversarial level will be treated therefore at a later date. With regard to IH's request for the opportunity to further develop views on newly developed material, the agency will accept written supplemental views for attachment to the transcript of the hearing. Revision of the regulation to provide for this practice is not necessary.

The RVIA concluded its comments with the recommendation that, in the event of a finding that a manufacturer has not reasonably met its notification and remedy obligations, the finding be accompanied by a statement of the grounds upon which the Administrator based his deter-

mination. The agency does not contemplate the issuance of such a finding without stating its reasons, and therefore concludes that its contemplated actions will conform to the RVIA recommendation.

In accordance with Department of Transportation policy encouraging adequate analysis of the consequences of regulatory action (41 FR 16200, April 16, 1976), the agency herewith summarizes its evaluation of the economic and other consequences of this action on the public and private sectors, including possible loss of safety benefits. In this case, the new regulation merely establishes procedures to carry out the mandate of section 156 of the Act to provide for a possible hearing on the adequacy of notification and remedy in the case where any interested person requests such a hearing. The informal nature of the hearing should have minimal costs of those, including manufacturers, who participate. While minimum requirements for petitioning might result in some increase in time for assessing the adequacy of notification and remedy in some cases, it is believed that any consequent effect on highway safety was contemplated by Congress in providing for the hearings.

In consideration of the foregoing, a new Part 557, *Petitions for Hearings on Notification and Remedy of Defects*, is added to Title 49 of the Code of Federal Regulations, as set forth below.

Effective date: January 31, 1977. Because the regulation is procedural and does not create a burden upon any regulated person, its found for good cause shown that an effective date earlier than 180 days following issuance is in the public interest.

(Sec. 9, Pub. 89-670, 80 Stat. 931 (49 U.S.C. 1657); Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); Sec. 156, Pub. L. 93-492, 88 Stat. 1470 (15 U.S.C. 1416); delegation of authority at 49 CFR 1.50)

Issued on December 22, 1976.

John W. Snow  
Administrator

41 F.R. 56810  
December 30, 1976

## PART 557—PETITIONS FOR HEARINGS ON NOTIFICATION AND REMEDY OF DEFECTS

Sec.

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### § 557.1 Scope.

This part establishes procedures under section 156 of the National Traffic and Motor Vehicle Safety Act of 1966, as amended (88 Stat. 1470, 15 U.S.C. 1416), for the submission and disposition of petitions filed by interested persons for hearings on the question of whether a manufacturer has reasonably met his obligation to notify owners, purchasers, and dealers of a safety-related defect or failure to comply with a Federal motor vehicle safety standard, or to remedy such defect or failure to comply. This part also establishes procedures for holding a hearing on these questions.

### § 557.2 Purpose.

The purpose of this part is to enable the National Highway Traffic Safety Administration to identify and respond on a timely basis to petitions for hearings on whether a manufacturer has reasonably met his obligation to notify or remedy, and to establish the procedures for such hearings.

### § 557.3 General.

Any interested person may file with the Administrator a petition requesting him to hold a hearing on—

(a) Whether a manufacturer has reasonably met his obligation to notify owners, purchasers, and dealers of a safety-related defect in any motor vehicle or item of replacement equipment manufactured by him;

(b) Whether a manufacturer has reasonably met his obligation to notify owners, purchasers, and dealers of a failure to comply with an applicable Federal motor vehicle safety standard in any motor vehicle or item of replacement equipment manufactured by him;

(c) Whether the manufacturer has reasonably met his obligation to remedy a safety-related defect in any motor vehicle or item of replacement equipment manufactured by him; or

(d) Whether the manufacturer has reasonably met his obligation to remedy a failure to comply with an applicable Federal motor vehicle safety standard in any motor vehicle or item of replacement equipment manufactured by him.

### § 557.4 Requirements for petition.

A petition filed under this part should be addressed and submitted to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street SW., Washington, D.C. 20590. Each petition filed under this part must—

(a) Be written in the English or Spanish language;

(b) Have, preceding its text, the word "Petition";

(c) Contain a brief statement concerning the alleged failure of a manufacturer to meet reasonably his obligation to notify or remedy;

(d) Contain a brief summary of the data, views, or arguments that the petitioner wishes to present in a hearing on whether or not a manufacturer has reasonably met his obligations to notify or remedy;

(e) Specifically request a hearing.

#### **§ 557.5 Improperly filed petitions.**

(a) A petition that is not addressed as specified in § 557.4, but that meets the other requirements of that section, will be treated as a properly filed petition, received as of the time it is discovered and identified.

(b) A document that fails to conform to one or more of the requirements of paragraphs § 557.4(a)(1) through (5) will not be treated as a petition under this part. Such a document will be treated according to the existing correspondence and other procedures of the NHTSA, and any information contained in it will be considered at the discretion of the Administrator.

#### **§ 557.6 Determination whether to hold a public hearing.**

(a) The Administrator considers the following factors in determining whether to hold a hearing:

- (1) The nature of the complaint;
- (2) The seriousness of the alleged breach of obligation to remedy;
- (3) The existence of similar complaints;
- (4) The ability of the NHTSA to resolve the problem without holding a hearing; and
- (5) Other pertinent matters.

(b) If, after considering the above factors, the Administrator determines that a hearing should be held, the petition is granted. If it is determined that a hearing should not be held, the petition is denied. In either case, the petitioner is notified of the grant or denial not more than 60 days after receipt of the petition by the NHTSA.

(c) If a petition submitted under this part is denied, a FEDERAL REGISTER notice of the denial is issued within 45 days of the denial, setting forth the reasons for it.

(d) The Administrator may conduct a hearing under this part on his own motion.

#### **§ 557.7 Public hearing.**

If the Administrator decides that a public hearing under this part is necessary, he issues a notice of public hearing in the FEDERAL REGISTER, to advise interested persons of the time, place, and subject matter of the public hearing and invite their participation. Interested persons may submit their views through oral or written presentation, or both. There is no cross-examination of witnesses. A transcript of the hearing is kept and exhibits may be accepted as part of the transcript. Sections 556 and 557 of Title 5, United States Code, do not apply to hearings held under this part. When appropriate, the Chief Counsel designates a member of his staff to serve as legal officer at the hearing.

#### **§ 557.8 Determination of manufacturer's obligation.**

If the Administrator determines, on the basis of the information presented at a hearing or any other information that is available to him, that the manufacturer has not reasonably met his obligation to notify owners, dealers, and purchasers of a safety-related defect or failure to comply with a Federal motor vehicle safety standard or to remedy such defect or failure to comply, he orders the manufacturer to take specified action to comply with his obligation, consistent with the authority granted the Administrator by the Act.

41 F.R. 56810  
December 30, 1976

**PREAMBLE TO PART 566—MANUFACTURER IDENTIFICATION****(Docket No. 71-11; Notice 2)**

This notice adopts a new Part 566 in Title 49, Code of Federal Regulations, to require manufacturers of motor vehicles, and manufacturers of motor vehicle equipment to which a motor vehicle safety standard applies, to submit identifying information and a description of the items they produce. A notice of proposed rule-making on this subject was published on April 28, 1971 (36 F.R. 7970). The comments received in response to the notice have been considered in this issuance of a final rule. The final rule exempts tire manufacturers from coverage, deletes the required submittal of estimated annual production, and requires the manufacturer to submit revised information when necessary to keep his entry current.

As noted in the proposal of April 28, 1971 (36 F.R. 7970) the establishment of a centrally organized system to collect information regarding the manufacturer's corporate status, mailing address, and items manufactured has been found necessary for efficient enforcement of the Act, as well as for distribution of information to manufacturers.

Several manufacturers stated that the information required by the regulations is already submitted to the NHTSA under existing regulations. This claim is true only with respect to tire manufacturers, who are required under Part 574, Tire Identification and Recordkeeping, (36 F.R. 1196, at 1197-8) to submit to the NHTSA data which would meet the requirements of the proposed regulation in order to obtain their code numbers. The tire manufacturers' request for exemption has therefore been granted.

While it is true that the Defect Reports regulation (36 F.R. 3064) requires the submittal of some information similar to the data collected under the proposed regulation, the former re-

quirement does not provide the comprehensive data required by the Administration.

The largest number of comments were directed at the required submittal of estimated annual production figures. Upon consideration of the comments and review of the Administration's need for this data, it has been determined that its collection would create difficulties for the industry that outweigh its benefits, particularly since approximate information about production is available to the NHTSA from other sources. Therefore this requirement is deleted.

A number of manufacturers were uncertain about their coverage under the proposed regulation. One packager of brake fluids stated that he did not manufacture the fluid and wished to know whether he is considered a manufacturer under the regulation. The packager's operations may significantly affect the quality of the brake fluid. Moreover, under amended Federal Vehicle Safety Standard No. 116, "Motor Vehicle Hydraulic Brake Fluids", the original manufacturer in some cases will not be identified on the container label. For these reasons it has been determined that for the purposes of this regulation, a person who packages brake fluid from a bulk state shall be considered a manufacturer of motor vehicle equipment and therefore subject to the regulation.

A manufacturer of mobile homes sought an exemption from coverage on the grounds that the general public does not usually engage in transporting mobile structure trailers. The fact that only "experts" transport the regulated vehicle is not germane to the question of its inclusion under the regulation, however, since the identification requirement is based on the general determination that the centralized data system

will improve enforcement of the Act and communication with manufacturers.

An incomplete vehicle manufacturer submitted a comment regarding the requirement that manufacturers of multipurpose passenger vehicles, trucks and trailers submit a description indicating the intended final use of their product. The final rule as issued does not specifically include incomplete vehicle manufacturers. A notice of proposed rulemaking published in this issue of the Federal Register would, however, amend the regulation to provide coverage of incomplete vehicles.

The time-of-submittal section has been clarified in light of the comments. It is intended that a manufacturer supply the required information when he begins to manufacture the motor vehicle or covered equipment. The regulation has been amended to indicate that subsequent submittals will be necessary only when changes in the manufacturer's business render the submitted data inaccurate or incomplete.

A number of manufacturers offered recommendations as to the classification system to be adopted by the Administration utilizing the data

collected under this regulation. Such discussion is beyond the scope of this regulation, but these suggestions will be considered at the appropriate time.

One manufacturer petitioned for a public hearing to discuss the NHTSA's planned use of the information collected under the regulation. Since the required submittal of estimated annual production figures has been deleted from the final rule, the concern about the use of the information by the Administration would appear to be dispelled, and a public hearing has been found to be unnecessary. The petition is therefore denied.

*Effective date:* February 1, 1972.

In consideration of the above, Part 566, Manufacturer Identification, is added to Title 49, Code of Federal Regulations. . . .

Issued on October 22, 1971.

Douglas W. Toms  
Administrator

**36 F.R. 20977**  
**November 2, 1971**



**PREAMBLE TO AMENDMENT TO PART 566—MANUFACTURER IDENTIFICATION**

(Docket No. 71-11; Notice 4)

This notice amends Part 566 in Title 49, Code of Federal Regulations, to provide for the coverage of "incomplete vehicles," as defined in Part 568, Vehicles Manufactured in Two or More Stages. A notice of proposed rulemaking on this subject was published on November 2, 1971 (36 F.R. 20987). No comments on the proposed amendment were received, and the amendment is adopted as proposed.

Part 566, published on November 2, 1971 (36 F.R. 20977), requires manufacturers of motor vehicles and of motor vehicle equipment other than tires to which a motor vehicle safety standard applies to submit identifying information and a description of the items which they produce. In responding to a comment on the proposed regulation from an incomplete vehicle manufacturer, it was noted that while the regulation clearly covers intermediate and final-stage manufacturers (as defined in Part 568) it makes no reference to incomplete vehicle manufacturers. This amendment is intended to clarify this ambiguity by specifically providing for coverage of incomplete vehicles.

The incomplete vehicle manufacturer stated that he was unaware of the final use of his light truck vehicles and requested that he be permitted to submit a brief description of the incomplete vehicle expressed in the terminology of the industry as an alternative to the description in terms of final use. This method for incomplete vehicle manufacturers has been found acceptable, and the NHTSA accordingly grants this request.

In consideration of the foregoing, the NHTSA adopts amendments to Part 566 of Title 49, Code of Federal Regulations . . . .

*Effective date:* February 1, 1972.

This amendment is issued under the authority of sections 103, 108, 112 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966, 15 U.S.C. 1392, 1397, 1401, 1407, and the delegation of authority at 49 CFR 1.51.

Issued on January 24, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 1364**  
**January 28, 1972**



## PART 566—MANUFACTURER IDENTIFICATION

### (Docket No. 71-11; Notice 2)

**§ 566.1 Scope.** This part requires manufacturers of motor vehicles, and of motor vehicle equipment to which a motor vehicle safety standard applies, to submit identifying information and a description of the items they produce.

**§ 566.2 Purpose.** The purpose of this part is to facilitate the regulation of manufacturers under the National Traffic and Motor Vehicle Safety Act, and to aid in establishing a code numbering system for all regulated manufacturers.

**§ 566.3 Application.** This part applies to all manufacturers of motor vehicles, and to manufacturers of motor vehicle equipment, other than tires, to which a motor vehicle safety standard applies (hereafter referred to as "covered equipment").

**§ 566.4 Definitions.** All terms defined in the Act and the rule and standards issued under its authority are used as defined therein. Specifically, "incomplete vehicle," "intermediate manufacturer," and "final-stage manufacturer" are used as defined in Part 568, Vehicles Manufactured in Two or More Stages.

**§ 566.5 Requirements.** Each manufacturer of motor vehicles, and each manufacturer of covered equipment, shall furnish the information specified in paragraphs (a) through (c) of this section to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590.

(a) Full individual, partnership, or corporate name of the manufacturer.

(b) Residence address of the manufacturer and State of incorporation if applicable.

(c) Description of each type of motor vehicle or of covered equipment manufactured by the manufacturer, including for motor vehicles, the approximate ranges of gross vehicle weight ratings for each type.

(1) Except as noted below, the description may be of general types, such as "passenger cars" or "brake fluid."

(2) In the case of multipurpose passenger vehicles, trucks, and trailers, the description shall be specific enough also to indicate the types of use for which the vehicles are intended, such as "tank trailer," "motor home", or "cargo van."

(3) In the case of motor vehicles produced in two or more stages, if the manufacturer is an incomplete vehicle manufacturer, the description shall so state and include a description indicating the stage of completion of the vehicle and, where known, the types of use for which the vehicle is intended.

**EXAMPLE:** "Incomplete vehicle manufacturer—Chassis-cab intended for completion as van-type truck."

If the manufacturer is an intermediate manufacturer, or a final stage manufacturer, the description shall so state and include a brief description of the work performed.

**EXAMPLE:** "Multipurpose passenger vehicles: Motor homes with GVWR from 8,000 to 12,000 pounds. Final-stage manufacturer—add body to bare chassis."

**§ 566.6 Submittal of information.** Each manufacturer required to submit information under § 566.4 shall submit the information not later than February 1, 1972. After that date, each person who begins to manufacture a type of motor vehicle or covered equipment for which he has not submitted the required information shall submit the information specified in paragraphs (a) through (c) of § 566.4 not later than 30 days after he begins manufacture. Each manufacturer who has submitted required information shall keep his entry current, accurate and complete by submitting revised information not later than 30 days after the relevant changes in his business occur.

36 F.R. 20977

November 2, 1981



## PREAMBLE TO PART 567—CERTIFICATION

Regulations for the certification labeling of motor vehicles and motor vehicle equipment, and the provision of identifying information on the label, were issued under sections 112, 114, and 119 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1401, 1403, 1407) by the Federal Highway Administrator and published in the *Federal Register* on January 24, 1969 (34 F.R. 1147). In a notice published on April 29, 1969, (34 F.R. 7031) it was proposed to make certain amendments to those regulations. This amendment to the regulations is based on that proposal.

The notice proposed that sections 367.7 and 367.8, relating to manufacturers and distributors of motor vehicle equipment, be revoked, pending further study of the distribution patterns and the needs of the motor vehicle equipment industry. No adverse comments to that proposal were received. Those two sections are accordingly being revoked with a view to the future issuance of regulations relating to the particular industries whose products are covered by equipment standards. Manufacturers and distributors of motor vehicle equipment must, however, continue to meet the certification requirements of section 114 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1403) as amplified by notice in the *Federal Register* of November 4, 1967 (32 F.R. 15444).

Clarifying language was proposed by the notice adding the phrase "(except chassis-cabs)" to section 367.4(a), and substituting the phrase "door edge that meets the door latch post" in section 367.4(c). A sentence was proposed for addition to section 367.4(g)(1), requiring the name of a person, other than the manufacturer, who affixes a label on an imported vehicle to be shown on the label. No adverse comments were received on these proposals, and they are incorporated into the rule as issued.

It was proposed to delete the reference to the use of tools in section 367.4(b), so that the subsection would read: "The label shall be permanently affixed in such a manner that it cannot be removed without destroying it." Some comments have indicated uncertainty as to the types of label that are permitted by this section. It is intended that the label be affixed so as not to be removable without damage. The purpose is to make sure that a label cannot be easily and undetectably transferred to another vehicle, and to provide that, within this requirement, manufacturers would have discretion in choice of material and adhesive method. In order to clarify the requirement, the words "or defacing" are inserted after "destroying". Several inquiries were directed specifically to the adequacy of riveted labels. This amendment permits riveting since it has been determined to be a generally satisfactory method of affixing the label.

One comment noted that, particularly in some foreign countries, assembly of a vehicle may be performed by a subsidiary corporation controlled by a parent that is the generally known "name-plate" company. It was suggested that the name of the parent corporation should be allowable on the label. The suggestion has been determined to have merit, in that no important purpose is served by requiring the name of a lesser-known subsidiary corporation on the label, and language permitting the use of a parent corporation's name is added to section 367.4(g)(1).

In order to allow exporting and importing manufacturers to indicate the country to which the word "Federal" refers, a sentence is added to section 367.4(g)(3) permitting the insertion of "U.S." or "U.S.A." before the word "Federal" in the conformity statement.

One petitioner suggested permitting the insertion of the model year before the word "vehicle" in the conformity statement, so that it would read "This 1970 vehicle conforms . . .", in the

case of a vehicle manufactured in late 1969. The requirement of stating the month and year of manufacture on the label is intended to eliminate confusion caused by model years that do not match calendar years, and that may mislead consumers as to the standards that are applicable. The manufacturer or dealer is free to indicate the model year of the vehicle by other labels, or any means that do not involve the certification label, and therefore it is not necessary to allow insertion of this possibly confusing additional date.

Objections were made to the requirement of color contrast on the label, and to the requirement of stating the actual manufacturer's name rather than that of a distributor under a "private brand" label. Similar comments were made and rejected at previous stages of rulemaking. Both of these requirements are important aids to enforcement where rapid inspection of large numbers of vehicles must be made.

One comment suggested that it would be misleading for a manufacturer to certify that the vehicle "conforms" to applicable standards, since the manufacturer has no control over the vehicle after it leaves his hands, and proposed that the certification be limited to the statement that the vehicle conformed at the time it was delivered to a distributor or dealer. The requirement for certification is not, however, limited to manufacturers, but extends to all distributors and importers as well. These parties satisfy this requirement by allowing the certification label to remain affixed to the vehicle. A distributor who alters a vehicle so that it does not conform to the manufacturer's certification must certify that the vehicle as altered meets applicable standards or he is subject to penalties under the Act. A dealer who sells a vehicle after altering it so that it does not conform would be subject to penalties under the Act, and prior parties would not be held responsible for the dealer's alterations. Any alterations that came about after a vehicle had been sold to a user would not be relevant to the question of conformity to applicable standards, as provided by section 108(b) (1) of the Act.

One comment raised the question of who should certify a vehicle such as a boat trailer that is

shipped complete but in unassembled form by its fabricator, such that it can be easily assembled without special equipment. The fabricator obviously has the technical knowledge on which certification should be based, but the subsequent assembler may be viewed as the "manufacturer" of the vehicle within the meaning of the Act. This question is part of the larger area of kits for the assembly of new vehicles or the renovation or alteration of existing ones. It is expected that separate regulations will be issued concerning standards applicable to such assemblers and their certification. As an interim measure, it has been determined that the purposes of the Act would be served by allowing the fabricator the option of treating itself as the certifying manufacturer under section 114 of the Act and affixing the label in a manner such that it will conform when the vehicle is assembled. Language to that effect is added to section 367.4(g) (1).

In section 367.4(e), describing the label location for motorcycles, the words "except the steering system" are added to the final phrase, "in a location such that it is easily readable without moving any part of the vehicle", in order to allow a location on the steering post that may be obscured when the steering system is turned to a certain position.

*Effective date.* Since these amendments do not impose substantial additional burdens relative to the regulations as previously issued, this part as amended shall continue to be effective for all motor vehicles manufactured on or after September 1, 1969.

In consideration of the foregoing, 49 CFR Part 367, Certification, is amended to read as set forth below. This amendment is issued under the authority of sections 112, 114, and 119 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1401, 1403, 1407) and the delegation of authority from the Secretary of Transportation to the Federal Highway Administrator, 49 CFR § 1.4(c).

Issued on July 7, 1969.

F. C. Turner  
Federal Highway Administrator

Sec.		367.5	Requirements for manufacturers of chassis-cabs.	
367.1	Purpose and scope.			
367.2	Application.	367.6	Requirements for distributors of motor vehicles.	
367.3	Definitions.			
367.4	Requirements for manufacturers of motor vehicles.			34 F.R. 11360 July 9, 1969

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## **PREAMBLE TO PART 567—CERTIFICATION**

**(Dockets No. 70-6, 70-8, and 70-15)**

**(Revised and reissued April 8, 1971)**

This notice adopts a new Part 568 in Title 49, Code of Federal Regulations, to require the furnishing of information relevant to a vehicle's conformity to motor vehicle safety standards, and makes complementary changes in the certification regulations in Part 567 of that title and in Part 571. It also amends the certification regulations with respect to the manufacturer whose name must appear on the label for trailers and with respect to the information that must appear on the label for all vehicles. Notices of proposed rulemaking on these subjects were published on March 17, 1970 (35 F.R. 4639), May 1, 1970 (35 F.R. 6969), and June 13, 1970 (35 F.R. 9293). The comments received in response to these notices, and the statements made at the public meeting on vehicles manufactured in two or more stages (September 18, 1970; 35 F.R. 13139) have been considered in this issuance of a final rule.

The amendments to the certification regulations proposed on May 1, 1970 (35 F.R. 6969) are adopted as proposed, except that GCWR information is not required.

The most frequently stated objection to the amendments was that the providing of GVWR and GAWR for passenger cars gives the purchaser information that is already provided by the label required by Standard No. 110. Although the information is to some extent duplicative, in that if the consumer knew the vehicle's unloaded weight, he could use the information required by Standard No. 110 to estimate the gross vehicle weight, the gross weight information is more easily usable for regulatory pur-

poses. Requirements of certain standards may in the future apply to a passenger car according to its weight class.

Several comments stated that the inclusion of weight information on the certification label would make the labels awkwardly large. Since only two items would be added to the label, these comments are considered to be without merit.

As amended, the regulation requires a certification label on vehicles sold directly to users, as well as on those sold to dealers and distributors. The Administration regards this as useful to the consumer and necessary to efficient, enforcement of the standards. The authority for requiring information labels is found in sections 112 and 119 of the Act, as well as in section 114.

The requirements for the certification label for multi-stage vehicles, discussed above, include the vehicle type. Under Part 567 as presently in force, the type need only be shown for multi-purpose passenger vehicles. This information has been determined to be useful for enforcement and other information purposes, and Part 567 is therefore hereby amended to require the vehicle type to appear on all labels.

Issued on April 8, 1971.

Douglas W. Toms  
Acting Administrator

**36 F.R. 7054**  
**April 14, 1971**



# **PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION**

**and**

## **(Denial of Petitions to Part 568—Vehicles Manufactured in Two or More Stages)**

**(Docket No. 70-8)**

Part 567 of Title 49, Code of Federal Regulations, certification requirements for motor vehicles, as amended, and Part 568, establishing requirements for vehicles manufactured in two or more stages, were published on April 14, 1971 (36 F.R. 7054 *et seq.*). Thereafter, pursuant to 49 CFR 553.35 (35 F.R. 5119), petitions for reconsideration were filed by American Motors Corporation, Chrysler Corporation, Ford Motor Company, General Motors Corporation, and International Harvester Company. On June 22, 1971, a notice proposing the addition of a vehicle identification number to the certification label required for vehicles manufactured in two or more stages was published in the *Federal Register* (Docket No. 71-14; Notice 1, 36 F.R. 11868).

This notice of Reconsideration and Amendment represents the action taken by this agency in response to the petitions and the notice of June 22.

1. *Effective date.* Ford and International Harvester petitioned that the effective date of Part 568 be delayed at least until July 1, 1972, to permit a more orderly development and implementation of systems and procedures pertaining to the documentation requirements of the regulation. Neither petitioner has argued that it is impossible or impracticable for it to comply with Part 568 by January 1, 1972, nor has any other petition been received on this subject. Timely implementation of these regulations is important, because of the need to have the required information in the hands of final-stage manufacturers in advance of the effective date of standards applicable to these types of vehicles. The Administrator therefore has denied the petitions for extension of the effective date.

1. *GVWR; GAWR.* International Harvester stated that if an incomplete vehicle manufacturer installs tires supplied by the customer or ships the vehicle with temporary tires that will be replaced by the customer, the manufacturer should be permitted to base his GVWR and GAWR ratings on the capacity of the vehicle's structure and to disregard the capacity of customer-installed tires. The company therefore requested an interpretation, or revision, of the regulation to exclude tire ratings in the computation of GAWR and GVWR, so long as the exclusion is indicated on the certification label or the document furnished to the final-stage manufacturer.

The NHTSA cannot accept the position that the weight ratings should not be related to the tires on the vehicle. To the contrary, the newly proposed motor vehicle safety standard on Tire and Rim Selection and Rim Performance for vehicles other than passenger cars (36 F.R. 14273, August 3, 1971) would require each completed vehicle to have tires whose load ratings reflect the gross axle weight ratings of the vehicle. If an incomplete vehicle manufacturer installs tires that are intended to be used on the vehicle as completed (whether or not they are "supplied by the customer"), the weight ratings of the vehicle should reflect the capacities of those tires. On the other hand, it is entirely permissible for an incomplete vehicle manufacturer to install "temporary" tires for shipment purposes only, if he provides full information on the subject in the document required to be furnished with the incomplete vehicle under Part 568.

Counsel for the Trailer Manufacturers Association have pointed out that some trailer manufacturers provide different sizes of tires as a customer

option, and have requested permission to state different weight rating values on the label for each tire size that is offered. This request may have merit, since it may not be practicable in some cases for a manufacturer to anticipate which tires will be used on a particular vehicle, or to rely on dealers to affix permanent labels that reflect the tires ultimately selected. A notice of proposed rulemaking that would allow manufacturers to provide several values for GVWR and GAWR, along with tire sizes for each, is published in this issue of the *Federal Register*.

American Motors petitioned for withdrawal of GVWR and GAWR from passenger car certification labels on the grounds that the terms are ambiguous and misleading. Ford also petitioned for a change in the GAWR-GVWR usage, stating that the present placard required on passenger cars by Standard No. 110 makes GAWR and GVWR unnecessary for passenger cars and that a similar reference to vehicle capacity weight should be substituted for GAWR and GVWR in the documents and labels required on multipurpose passenger vehicles, trucks, and buses. American interprets GVWR to be the equivalent of maximum loaded vehicle weight, as well as the equivalent of the sum of unloaded vehicle weight and vehicle capacity weight.

The definitions of gross vehicle weight rating and gross axle weight rating have been developed in order to provide useful and reasonably flexible methods for manufacturers to rate the overall capacities of their vehicles and axle systems respectively, on the basis of which the vehicles will be tested for conformity to various standards. The existing concept of "maximum loaded vehicle weight" has been found deficient for some purposes, because it relies on a complex definition of "curb weight" (found in Standard No. 110, 49 CFR 571.21) that combines both arbitrary and specific elements. It is this agency's intent to allow manufacturers, in stating GVWR and GAWR, to select values that represent the overall performance capabilities of their vehicles as delivered, without necessarily varying the values to allow for minor weight variations in a particular line of vehicles. To preclude the possibility of understating a vehicle's GVWR, however, the certification regulation is herewith amended to

provide that the stated GVWR shall not be less than the sum of unloaded vehicle weight, rated cargo load, and 150 pounds times the vehicle's designated seating capacity.

3. *Certification responsibility of the incomplete vehicle manufacturer.* General Motors has petitioned for a revision of Part 568 that would "distinguish between final-stage manufacturers who merely add a van or a work unit to the rear of a chassis-cab, and those manufacturers who perform material alterations to the incomplete vehicle in the process of manufacturing a complete vehicle." In the former case, under the GM scheme, the incomplete vehicle manufacturer would certify that the vehicles complied with all Federal standards except those (such as No. 108) where final compliance depends upon the work performed by the add-on type manufacturers. The latter would then certify that he had made no alterations to the incomplete vehicle other than \_\_\_\_\_ (describing the work performed), and that the vehicle complied with \_\_\_\_\_ (standards not certified by the incomplete vehicle manufacturer). GM believes that the incomplete vehicle manufacturer could be required by regulation to provide specific items of information about its product (e.g., maximum height of center of gravity, regarding Standard No. 105) to enable the final-stage manufacturer to add a van or work unit without causing a nonconformity. In the second case, under the GM scheme, the material-alteration type manufacturer would certify the entire vehicle, and could obtain from the incomplete vehicle manufacturer all data needed for certification.

There is considerable similarity between the GM scheme and Part 568. The manufacturer of a vehicle complete except for the addition of a van or work unit, under Part 568, provides a statement (568.4(a)(7)(i)) that the vehicle when completed will conform to specified standards if no alterations are made in identified components of the incomplete vehicle. He also provides an appropriate statement, according to 568.4(a)-(7)(ii) or (iii), as to the remaining standards. On the basis of such statements, and the work he performs, the final stage manufacturer certifies the complete vehicle.

The primary difficulty with the GM scheme is that it is not adequate for such standards as No. 121, *Air Brake Systems*, where end conformance depends upon work performed by both the incomplete vehicle and final-stage manufacturers. GM would not, in that instance, certify conformance as to Standard No. 121, nor would it provide information sufficient for the final-stage manufacturer to produce a conforming vehicle. The scheme with respect to material-alteration type manufacturers as well would not appear to provide as much assistance to final-stage manufacturers as that adopted under Part 568. Traditionally, the final-stage manufacturer is an entity whose resources are limited. The thrust of Part 568 is to place some legal responsibility on the incomplete vehicle manufacturer to supply the final-stage manufacturer with data and conditions under which the completed vehicle will comply, and most importantly, to allocate a fair share of the legal responsibility for conformity to the incomplete vehicle manufacturer. GM's petition is therefore denied.

Chrysler also wishes to split the certification responsibility, and petitioned for an amendment requiring the incomplete vehicle manufacturer to "list . . . only those standards to which full compliance has been achieved . . ." Otherwise, Chrysler feels it has no alternative other than periodic use of the general statement allowed by § 568.4(a)(7)(iii) that conformity with a standard is not substantially determined by the design of the incomplete vehicle, and that the incomplete vehicle manufacturer makes no representation as to conformity of the incomplete vehicle with such standard.

Since alternative (iii), above, is partially a factual representation, Chrysler may not provide such a statement where conformance with a standard is substantially determined by the design of the incomplete vehicle. It is up to the

incomplete vehicle manufacturer to decide which type of statement accurately reflects the condition of compliance, and Chrysler may use the general statement in those instances where it is appropriate. Chrysler's petition is therefore denied.

4. *Sequence of required data.* Ford petitioned that Part 567 be amended to make the sequence of the data required on certification labels permanently affixed to completed vehicles consistent with that on the document to be supplied by incomplete vehicle manufacturers (Part 568). Ford's reason for this request is that it would simplify computer print-out of material if the same computer program could be used for both requirements.

Although this request has some technical merit, Ford is the only manufacturer who has commented on variances in data sequence. This agency understands that other manufacturers have already ordered certification labels printed in the sequence required by Part 567, and deems it unfair to them to amend Part 567 at this time. Ford's request is therefore denied.

5. *Proposed VIN.* There were no objections to the proposal that a vehicle identification number be required for labels on vehicles manufactured in two or more stages, and the proposal is adopted.

In consideration of the foregoing changes are made in 49 CFR Part 567.

*Effective date:* January 1, 1972.

Issued on October 6, 1971.

Douglas W. Toms  
Administrator

36 F.R. 19593  
October 8, 1971



## PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION

(Docket No. 70-8; Notice 5)

This notice amends the Certification Regulations to allow vehicle manufacturers to list on the certification label more than one set of values for gross vehicle and gross axle weight ratings. It also allows school bus manufacturers to compute the vehicle's GVWR using 120 pounds to represent the weight of an occupant.

On April 14, 1971, (36 F.R. 7054), the certification regulations (49 CFR Part 567) were amended to provide for the furnishing of additional information on the certification label, and a new Part 568, "Vehicles Manufactured in Two or More Stages", was established. On October 8, 1971, (36 F.R. 9593) certain amendments to Part 567 and Part 568 were issued in response to petitions for reconsideration received concerning the amendment of April 14, 1971. Also on October 8, 1971, a notice was issued (36 F.R. 19617) proposing to allow multiple GVWR and GAWR listings to be used in certain circumstances. This notice is issued in response to petitions for reconsideration concerning the amendment of October 8, 1971, and comments concerning the notice of proposed rulemaking of that date.

The proposal of October 8, 1971, allowing multiple GVWR and GAWR listings to be placed on the certification label is adopted as proposed. Comments received by the NHTSA were generally in favor of this amendment. One commentator stated that the proposal would not be practical for large trucks. However, the requirement is only permissive, and it will provide a useful alternative to manufacturers of various other types of vehicles. It is therefore adopted as proposed.

The final rule published in the October 8 notice amended sections 567.4(g)(3) and 567.5(a)(5) to provide for GVWR computation using a multiplier of 150 pounds times the vehicle's designated seating capacity. This agency has received petitions for reconsideration of this

provision from the School Bus Manufacturers Institute and Blue Bird Body Company. Both suggested that the figure of 150 pounds is unrealistically high, because the maximum seating capacity of a school bus is based on three children sitting on each standard 39-inch seat. These petitions suggested that a 120-pound figure, found in the 1970 Revised Edition of *Minimum Standards for School Buses*, be used in computing the GVWR of school buses. The NHTSA agrees with these petitions, and the regulation is amended accordingly.

It has been brought to the attention of the NHTSA that on some vehicles it will be difficult to affix the required label in the designated location, because of space limitations. It was requested that the use of a multi-column label or a label in two parts be considered permissible under the regulation. One such request was answered in a letter interpretation to counsel for the Trailer Manufacturers Association, dated November 3, 1971. The substance of the agency's reply is repeated here for the benefit of all interested parties: The NHTSA adheres to the requirement in the certification regulation that the required information be listed "in the order shown," a requirement that since its issuance in September 1969 has been found to enhance the readability and usefulness of the label. However, there is no requirement that the listing be in one column, and as long as it appears in the order specified, multi-column labels or adjacent labels in two or more parts are permitted.

Some inquiries were received concerning the significance of the requirement for a vehicle identification number on the label of a vehicle manufactured in two or more stages (36 F.R. 19593, October 8, 1971). This VIN requirement is not new, as some persons apparently believed, but merely a continuation of the requirement contained in the original certification regulations

Effective: January 1, 1972

effective September 1, 1969 (34 F.R. 11360, July 9, 1969). The VIN requirement is not intended to change existing practices with respect to vehicle numbering.

In consideration of the foregoing, Part 567 of Title 49, Code of Federal Regulations, is hereby amended . . . .

*Effective date:* As these requirements impose no additional burdens on any person, and as implementation of these requirements as part of the general regulatory scheme is essential, good cause exists for an effective date less than 30 days from the day of publication. The amendments are accordingly effective on January 1, 1972.

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This notice is issued pursuant to Sections 103, 112, 114, and 119 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1392, 1401, 1403, 1407), and the delegation of authority at 49 CFR 1.51.

Issued on December 8, 1971.

Charles H. Hartman  
Acting Administrator

**36 F.R. 23571**  
**December 10, 1971**



**PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION****(Docket No. 70-8; Notice 7)**

The purpose of this notice is to allow manufacturers to specify a tire size on their certification label when they provide only one gross vehicle weight rating, or one gross axle weight rating for each axle, and do not list other optional tire sizes. The provisions of the Certification regulations dealing with gross vehicle weight rating and gross axle weight rating were published April 14, 1971 (36 F.R. 7054), and were amended on October 8, 1971 (36 F.R. 19593) and December 10, 1971 (36 F.R. 23572). In addition, the definition of gross axle weight rating (49 CFR 571.3) was amended February 12, 1972 (37 F.R. 3185).

As issued on April 14, 1971, the certification regulations required each manufacturer (final-stage manufacturers in the case of multi-stage vehicles) to include on his certification label a gross vehicle weight rating, and a gross axle weight rating for each axle. The assigned rating was to be made without reference to particular tires or other components on which the value was based. The amendment of December 10, 1971, modified this result to some extent by allowing a manufacturer, at his option, to list different weight ratings for various tire sizes, with the appropriate tire size listed for each rating.

In response to inquiries by interested persons, the agency has decided not to limit this option to cases of multiple tire sizes. By the amendment issued herewith, manufacturers are allowed

to list the appropriate tire size for both gross vehicle and axle weight ratings, even when only one rating is provided. With this information, subsequent manufacturers, distributors, dealers, and users who install or replace tires will be put on notice that the tires they mount on the vehicle might affect the weight ratings provided by the manufacturer.

This amendment also makes a minor correction in a paragraph reference in the regulations.

In light of the above, 49 CFR Part 567, "Certification," is amended . . . .

*Effective date:* July 13, 1972.

As this amendment provides an optional method of compliance and imposes no additional burdens, it is found for good cause shown that an effective date less than 30 days from the day of issuance is in the public interest.

This notice is issued under the authority of sections 103, 112, 114, and 119 of the National Traffic and Motor Vehicle Safety Act, 15 U.S.C. 1392, 1401, 1403, 1407, and the delegation of authority at 49 CFR 1.51.

Issued on July 6, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 13696**  
**July 13, 1972**



## PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION

### (Docket No. 72-27; Notice 2)

This notice establishes certification and labeling responsibilities for persons who alter "completed vehicles" after their certification as conforming to applicable motor vehicle safety standards. The requirements are based on those proposed in a notice of proposed rulemaking published October 25, 1972 (37 F.R. 22800).

Under the new requirements, a person who alters a completed vehicle, other than by the attachment, substitution, or removal of "readily attachable components", will be required to ascertain conformity to all applicable standards as of any date between the manufacture date of the completed vehicle and the manufacture date of the altered vehicle. That person will be required to affix a label (leaving the certification label in place) that identifies the alterer, the date of alteration, the date as of which conformity is determined, and any changes the alteration produces in either gross weight ratings or vehicle classification. A person who does not alter the vehicle, or who adds, substitutes, or removes only readily attachable components will be required to leave the certification label in place, but will not be required, unless the alteration invalidates the stated weight ratings, to provide an additional label. Distributors who do not alter the vehicle, or who alter it using only readily attachable components and do not invalidate the stated weight ratings will meet the certification requirements by leaving the certification label in place. The requirements will place persons who alter completed vehicles on the same basis as final-stage manufacturers, by allowing the former to choose as the date by which vehicle conformity is determined any date between the date on which the completed vehicle is manufactured and the date on which the vehicle is altered. Under previously existing statutory and regulatory provisions, alterers of vehicles were required to use

only the date of completion of the altered vehicle as the date by which conformity could be determined.

General Motors, Truck Body and Equipment Association, and Stutz Motor Car of America supported the proposal without qualification. Other comments generally approved the proposal with some suggested changes.

Several comments argued that the limiting concept of "readily attachable components", the addition, removal, or substitution of which does not create a requirement to affix a label, should not include "mirrors or tire and rim assemblies", as the language appears in §§ 567.6 and .7, and § 568.8. It was argued that these items directly affect the vehicle's conformity to the standards or the weight ratings, and should therefore not be alterable without, in effect, a recertification by the alterer. It was variously suggested that explicit inclusion of these items as examples of readily attachable components might cause a safety problem, a false certification, or a misleading of persons such as dealers as to their responsibilities under the Act and the standards.

The NHTSA does not accept these arguments. The provisions for alteration of vehicles, like the larger certification scheme of which they are a part, are intended to reflect the realities of manufacture and distribution. It is a fact that the substitution of tires by a dealer takes place in a substantial fraction of all vehicle sales. Moreover, a large proportion of the components that are in fact frequently altered at the dealer level are directly affected by standards: mirrors, tires, rims, lighting accessories, bumper guards and attachments, windshield wipers and washers, hub caps and wheel nuts, seat belts, and interior components such as air conditioners or radios that come within the head impact area, to name

a few. If these items were not included in the concept of readily attachable components, for which an alteration label is not required, it is safe to say that virtually every dealer in the country would be affixing labels to many of the vehicles he sold.

It was not the intent of this agency to create such a manifold expansion of labeling requirements. The altered-vehicle label is designed primarily to reach those cases where a completed vehicle is significantly altered, in a manner, and with components, not provided by the original manufacturer. The substitution or addition of parts such as tires, rims, and mirrors is a routine aspect of typical vehicle distribution systems, and the cost burden of affixing a permanent label to the vehicle has not been found to be justified in that situation. For these reasons the language of the regulation has in these respects been retained as proposed.

The requirement to keep a vehicle in conformity to the standards and the weight ratings applies throughout the chain of distribution regardless of any labeling requirements, and this agency has no intent of downgrading the importance of that requirement. The comments did reveal a justifiable concern of manufacturers for situations where the vehicle might be altered, as by substitution of tires, in a way that its stated weight ratings are no longer valid. Also, there may well be cases where a customer wants a vehicle to have lighter components for its intended purpose, and would accept lowered weight ratings. To deal with these cases, language has been added to sections 567.6 and .7, and 568.8, to require the affixing of an alteration label whenever any type of alteration is made that would invalidate the stated weight ratings.

American Motors and Jeep argued that requiring alterers to certify conformity discriminates against manufacturers' dealers. They pointed out that dealers, who generally alter vehicles before sale, are required to maintain conformity, while aftermarket installers of equipment, because the additions they make are to "used" vehicles, need not. They suggested that "special add-on accessories" be exempted from the requirements, that a new category of "Special Motorized Equipment" be created to which some

of the standards would not apply, that equipment standards be issued to cover aftermarket installers, and that highway safety program standards prohibit the alteration of vehicles such that they would not conform to the standards. These comments are not, in the view of this agency, within the scope of the rulemaking. Requests of this nature should be submitted as petitions for rulemaking, with supporting data, in accordance with the procedures of 49 CFR Part 553.

British Leyland suggested that an exemption to the labeling requirements be made for persons installing accessories which the original vehicle manufacturer makes available, and whose installation he knows will not affect vehicle conformity. The NHTSA expects that most accessories meeting this description will be readily attachable within the sense of the regulation, and no further labeling in these cases will be required. It should be noted that the category of "readily attachable components" cannot be sharply defined, and in any marginal case the NHTSA will accept the reasonable judgment of the parties concerned, especially where the original manufacturer and the alterer are in agreement. In cases where components of this type are not found to be readily attachable, the burden on the alterer to determine that the alteration does not destroy conformity is minimized, leaving him with essentially no more than the attachment of the alterer label.

Certain comments pointed out that while proposed sections 567.7 and 568.8 are not limited in their application to distributors, that limitation had been retained in section 567.6. The comments suggested that, as sections 567.7 and 568.8 applied to dealers, section 567.6 should likewise so apply. The substance of the suggestion has been adopted in the final rule, by modifying § 567.6 to apply to any person.

The Recreation Vehicle Institute (RVI) suggested that manufacturers of completed vehicles be required to supply a document when requested by a vehicle alterer, similar to that provided final-stage manufacturers, that advises alterers how to achieve or retain conformity. This suggestion has not been adopted. If a vehicle manufacturer wishes to provide information on the

alteration of his vehicles, he of course may do so. Once a completed, certified vehicle has been produced, however, the NHTSA does not believe it reasonable to require manufacturers to provide persons who might alter that vehicle with additional certification information. The requirement to provide information concerning incomplete vehicles (Part 568) is founded on the fact that an incomplete vehicle manufacturer has marketed his vehicles with the express intent of having them completed by other persons. This is not the case with completed vehicles.

RVI also suggested that the regulation specifically provide that alterers be allowed to base their conclusions as to conformity on the original certification. The NHTSA does not consider such a provision to be meaningful. The extent to which the alterer's conformity assurance may be based on the original certification depends entirely on what the alterer does to the vehicle, which is a fact peculiarly within his knowledge.

Certain comments suggested that compliance with the requirements be permitted before the

specified effective date. The NHTSA believes this request to be meritorious. Alterers will be able to conform to existing requirements or to those issued by this notice at any time up to the effective date.

In light of the above, amendments are made to 49 CFR Parts 567 and 568 . . . .

*Effective date:* February 1, 1974. However, persons who alter vehicles may at any time before that date conform to the provisions issued in this notice in lieu of existing provisions of 49 CFR Parts 567 and 568.

Sections 103, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718; 15 U.S.C. 1392, 1401, 1403, 1407; delegation of authority at 38 F.R. 12147.

Issued on June 13, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

**38 F.R. 15961**  
**June 19, 1973**



## PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION

(Docket No. 71-19; Notice 31)

This notice establishes a new Federal Motor Vehicle Safety Standard No. 120, *Tire selection and rims for motor vehicles other than passenger cars*, 49 CFR 571.120, and amends 49 CFR Part 567, *Certification*. The new standard specifies tire and rim selection requirements for multipurpose passenger vehicles (MPV's), trucks, buses, trailers, and motorcycles, and marking requirements for rims for use on these vehicles. It also adds tire and rim matching information to the items required to appear on such vehicles' certification labels. The amendment to Part 567 makes that regulation consistent with the new standard. The notice is based on proposals which were published August 3, 1971 (36 FR 14273) and June 3, 1974 (39 FR 19505).

The standard requires new vehicles (other than passenger cars, which are the subject of Standard No. 110) to be equipped with tires that comply with either Standard No. 109, *New Pneumatic Tires—Passenger Cars*, or Standard No. 119, *New Pneumatic Tires for Vehicles Other Than Passenger Cars*. The tires must be fitted to rims which have been designated by the tire manufacturer, in accordance with S4.4 of Standard No. 109 or S5.1 of Standard No. 119, as suitable for use with those tires. The designations are made by listing the tire-rim matching information in one of seven industry-maintained publications or by furnishing this information to dealers of the manufacturer's tires, to any person upon request, and to the NHTSA.

Each axle must be equipped with tires the sum of whose load ratings is not less than that axle system's Gross Axle Weight Rating (GAWR). In certain situations, discussed below, a vehicle may be equipped with used tires of adequate load rating that were originally manufactured to comply with Standard No. 119. Adequacy is determined as follows: the sum of the maximum

load ratings of the tires must be equal to or greater than the GAWR which is specified on the Part 567 certification label, with an exception discussed below. If the certification label lists more than one GAWR-tire combination for the axle, the sum of the tires' maximum load ratings must meet or exceed the GAWR that corresponds to the tires' size designation. If more than one combination is listed, but the size designation of the actual tires on the vehicle is not among those listed, then the sum of the load ratings must simply meet or exceed the lowest GAWR which does appear.

Rims must be marked with five items of information: the size designation (and, in the case of multipiece rims, the type designation), an indication of the source of the rim's nominal dimensions, and the DOT symbol must appear on the weather side, while identification of the manufacturer and date of manufacture may appear at any place on the rim's surface. The standard does not explicitly require that a rim conform to its published dimensions. If a rim's deviation from these nominal dimensions is so great that a safety hazard is presented, however, the defect notification and remedy provisions of the National Traffic and Motor Vehicle Safety Act of 1966, as amended, provide authority to deal with the hazard.

To reduce the possibility of confusion and to minimize the number of characters stamped on the rim, the standard establishes a set of code letters to indicate the source of the rim's nominal dimensions. "T", "E", "J", "D", "M", "B", and "S" indicate the industry publications listed in Standards Nos. 109 and 119, while "X" indicates an independent listing with tire dealers and the NHTSA. The proposed requirement that the marking indicate the date of the publication has not been adopted because it does not appear neces-

sary. The standard does not require manufacturers to be identified with a code number assigned by the NHTSA, because no action has been taken on the proposal published in the Federal Register on June 7, 1973 (38 FR 14968). The rim manufacturer is free to use his name, trademark, or a symbol of his choice. Because a rim's maximum load rating may be limited by its disc, this standard does not require that the maximum load rating be marked. The rim's maximum inflation pressure, while not affected by the choice of disc, is potentially misleading without additional marking of the disc. These rim markings are being considered in conjunction with further NHTSA rulemaking activity concerning wheels.

Several commenters objected to the proposed requirement of a tire-rim information label, required by Part 567. Upon consideration of these comments, the NHTSA agrees that a separate placard is unnecessary. GVWR and GAWR are already required to appear on the certification label. If the vehicle manufacturer exercises his option of listing more than one GVWR-GAWR combination, he is already required to indicate the proper tire size designations after each weight rating. Standard No. 120 further requires, for vehicles other than passenger cars, the following information to appear after each weight rating and tire size designation listed on the certification label: rim size designation, cold inflation pressure for the tires, and speed restriction (if any) for the tires. This information is now required to appear even when only one GVWR-GAWR combination is listed. The Part 567 label is thus expanded to include the information that would have appeared on the separate label described in S5.4 of the proposed standard No. 120.

Many commenters pointed to the large number of possible axle-tire-rim combinations and suggested that the information label would be too large and confusing. Some discussed the vehicle manufacturer's difficulty in ensuring that the required information appear, given the common practice of changing tires and rims after a new vehicle has been shipped to a dealer. These commenters appear to have misunderstood the various proposed and existing requirements. Part

567 does not, in its prior form or as amended today, require a listing for more than one GVWR-GAWR-tire combination. Further, while S5.1.2 of Standard No. 120 requires the tires with which a new vehicle is equipped to be of adequate loading rating for the GAWR, and while S5.3 requires an indication of tires adequate for the GAWR, there is no requirement that the actual tires be listed on the certification label. The tire information on that label is intended as a guide which tells the user what replacement tires, as a minimum, are appropriate for the listed GAWR and what rims are appropriate for those tires.

Guerdon Industries, Inc., objected to the requirement that vehicles be restricted to the load limits molded on tire sidewalls. They pointed to the mobile home industry's practice of loading tires to 150 percent of their load ratings, and argued that this practice should be permitted to continue. Examination of data compiled by the Bureau of Motor Carrier Safety, however, shows that from 1969 to 1972 (the most recent years for which figures are available), tires accounted for 18.0 percent of reported mobile home accidents. The NHTSA therefore rejects the proposition that such overloading does not present a safety hazard. There is no exception to the requirement that all vehicles be equipped with tires of adequate load rating.

Some commenters requested that tire overloading be permitted under restricted speed conditions. These commenters appear to have misunderstood the scope of the standard. Vehicles-in-use are regulated by the States and by the Bureau of Motor Carrier Safety. Standard No. 120 does not prohibit the overloading of tires in speed-restricted service, or otherwise regulate the use of tires or vehicles. The GVWR and GAWR information on the certification level is based on unrestricted service.

The formula described above for tire selection is subject to an exception for MPV's, trucks, buses, and trailers which are equipped with passenger car tires. The combined maximum load rating of the passenger car tires on an axle must be equal to or greater than 110 percent of the axle's GAWR. Some comments supported this exception as it was proposed. Others suggested



that passenger car tires be permitted on such vehicles without the 110% factor, while the RMA and others argued that passenger car tires should not be permitted on trailers at all. The NHTSA rejects the argument that the 110% correction factor is unnecessary. Because non-passenger-car service on the average puts greater stresses on a tire (for example, trucks and trailers are driven at or near their maximum rated loads more often than passenger cars), a given load rating for a Standard No. 109 tire does not have the same meaning as the identical load rating for a Standard No. 119 tire. Conversely, the NHTSA has found no evidence that passenger car tires are inadequate for trailer service when the load correction factor is applied. The 110 percent factor is therefore adopted as proposed.

As proposed, the standard included an exception to the requirement that new vehicles be equipped with new tires conforming to Standard No. 109 or 119. Used tires were to be permitted on a truck, bus, or trailer (other than a mobile structure trailer) under the following conditions: the tires were originally manufactured to comply with Standard No. 119; they were of adequate load rating; they were owned or leased by the purchaser; and they were installed on the new vehicle at its place of manufacture at the purchaser's request. Comments on this exception were generally favorable, although one mobile home manufacturer objected to the exclusion of mobile structure trailers. The exception was intended to accommodate commercial delivery practices in the truck, bus, and trailer industry. While fleets which lease tires on a mileage-contract basis or which install their own used tires on new vehicles are in a good position to know the condition of these tires, the mobile home purchaser has no knowledge of the history of used tires installed on his vehicle. The proposed exception to the new tire requirement is therefore not extended to include all mobile structure trailers. It is, however, extended to include those delivered to the purchaser by a motor carrier, because a motor carrier (who is subject to Bureau of Motor Carrier Safety regulations) can be expected to be more familiar with tire safety needs than a typical purchaser. To clarify the proposed language "originally manufactured to

comply with Standard No. 119", the words "as evidenced by the DOT symbol" have been added to the text of the standard.

Several commenters pointed out that certain vehicles are designed for non-uniform side to side loading, and suggested that the proposed method of determining the necessary tire load rating from the GAWR (dividing GAWR by the number of wheel positions on the axle) is inadequate for such vehicles. These commenters argued that tire load rating should be based on the maximum wheel load, rather than on the GAWR. The standard issued today does not specify the maximum load rating to be exceeded by each tire on any given axle. Instead, it requires the sum of those load ratings to meet or exceed the GAWR. The manufacturer of an asymmetrically designed vehicle can therefore equip an axle with tires of differing load ratings. The NHTSA agrees that each tire should be capable of carrying its maximum expected wheel load. At this time, however, the NHTSA considers its defect authority, combined with the new standard, adequate to ensure that vehicles are equipped with such tires.

Definitions have been added to clarify the meaning of "rim base", "rim size designation", "rim type designation", "rim diameter", "rim width", and "weather side". Definitions suggested for other terms have not been included in the standard because the meaning have been found to be widely understood or self evident.

Many comments pointed out problems with a single effective date. For example, for marked rims to be available to vehicle manufacturers in time, an interval is necessary between the effective dates for the rim marking requirement and the requirement that vehicles be equipped with rims that comply with the standard. Similarly, to require all used tires, otherwise permitted by S5.1.3 to have originally been manufactured to comply with Standard No. 119 would, without a delayed effective date, cause the waste of pre-Standard No. 119 tires of adequate load-carrying capacity. Accordingly, a staggered system of effective dates is established as set out below.

In consideration of the foregoing, Chapter V of Title 49, Code of Federal Regulations, is amended. . . .

**Effective: September 1, 1976**

*Effective dates:* For the amendment to Part 567: September 1, 1976. For Standard No. 120: August 1, 1976, for the rim marking requirements (S5.2), and September 1, 1976, for the remaining requirements except as otherwise provided in the standard.

(Secs. 103, 112, 114, 119, 201, 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1407,

1421, 1422); delegation of authority at 49 CFR 1.50.)

Issued on January 19, 1976.

James B. Gregory  
Administrator

**41 F.R. 3478**  
**January 23, 1976**

**PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION****(Docket No. 76-1; Notice 2)**

This notice amends 49 CFR 567 and 575 to allow manufacturers an alternative method of referring purchasers to appropriate consumer information tables.

On January 22, 1976, the National Highway Traffic Safety Administration issued in the Federal Register (40 FR 3315) a notice which proposed amending 49 CFR 575, Consumer Information and 49 CFR 567, Certification to allow the consumer information document provided to the purchaser of a vehicle to refer the reader to the vehicle's certification label to determine which information applied to that vehicle. This information, which relates to the performance characteristics of the vehicle, is required to be made available to purchasers by 49 CFR 575.6(a). Currently, if the document containing this information also contains information relating to other vehicles, the document itself must clearly indicate which information is applicable to the vehicle purchased. The NHTSA proposal was made in response to a petition from the General Motors Corporation which suggested that the proposed alternative procedure would for some companies be a more efficient and less costly method of accomplishing the purposes of the regulation.

Comments in support of the proposal were received from General Motors Corporation,

American Motors Corporation, Chrysler Corporation and Ford Motor Company. No comments in opposition were received.

Based on the petition of General Motors and the comments concerning the notice of proposed rulemaking, the NHTSA concludes that allowing an alternative method of designating the appropriate consumer information tables would reduce the possibility of error and lessen the cost to the manufacturer.

In consideration of the foregoing, Parts 567 and 575 of Title 49, Code of Federal Regulations, are amended. . . .

Effective date: April 1, 1976. Because the procedures established herein are optional and impose no increased burden on any party, it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 103, 112, 114, 119, Pub. L. 80-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1403, 1407); delegation of authority at 49 CFR 1.50.)

Issued on: March 26, 1976.

James B. Gregory  
Administrator

**41 F.R. 13923**  
**April 1, 1976**



# PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION

(Docket No. 71-19; Notice 4)

This notice delays the effective dates of certain requirements of Standard No. 120, Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars, and of the conforming amendment to 49 CFR Part 567, Certification, that was issued along with the standard. Its purpose is to permit manufacturers to avoid the burden of preparation for compliance with requirements that the NHTSA has determined should be amended. There is no delay, however, in the standard's basic tire and rim selection requirements, which become effective September 1, 1976.

Standard No. 120 (49 CFR § 571.120) was issued on January 19, 1976 (41 FR 3478; January 23, 1976; Notice 3). It specifies requirements for tire and rim selection, rim marking, and the provision of tire and rim information on vehicle certification labels. Part 567, the certification regulation, was amended in the same FEDERAL REGISTER notice, to accommodate the additional labeling.

Manufacturers are expected to begin preparations for compliance with a standard at the time a final rulemaking notice is issued. Lead times are established in accordance with this expectation, despite the possibility of future amendments. Fifteen petitions for reconsideration of Standard No. 120 have been received. From the petitions and other information available to this agency, the NHTSA has determined that certain provisions of the standard should be amended. However, the agency finds it impracticable to respond to the petitions by May 24, 1976, the date by which a response would be expected under its policy regarding such responses (49 CFR Part 553, Appendix). The agency plans to respond to the petitions not later than July 1, 1976. Without a delay of certain effective dates, manufacturers would be forced to make prepara-

tion for compliance with requirements that will, in all likelihood, be changed.

Accordingly, this notice changes from September 1, 1976, to September 1, 1977, the effective date of the requirement, found in S5.3, that certain information appear on a vehicle's certification label. The effective date of the conforming amendment to Part 567, *Certification*, is similarly changed to September 1, 1977. The effective date of S5.2, *Rim Marking*, is changed from August 1, 1976, to August 1, 1977. The date by which vehicles must be equipped with rims that are marked in accordance with the standard, which is presently specified in S5.1.1 as March 1, 1977, is changed to September 1, 1979. The NHTSA is considering the possibility of eliminating this requirement entirely, to simplify the phase-in of properly marked rims as they become available.

Manufacturers should note that, apart from the changed effective date for the requirement in S5.1.1 that vehicles be equipped with properly marked rims, there is no delay in the September 1, 1976, effective date of the standard's basic requirement, S5.1 (*Tire and Rim Selection*).

The symbol "DOT" is required by S5.2(c) to appear on every non-passenger-car rim manufactured on or after the effective date of the rim marking requirements, as a certification by the manufacturer of the rim that it complies with all applicable Federal motor vehicle safety standards. Several manufacturers have requested permission to begin stamping the symbol on rims that otherwise comply with the standard, before that effective date. In the past, the NHTSA has in similar situations taken the position that such use of the DOT symbol to indicate "anticipatory compliance" would necessarily be a false or misleading certification, because no standard would in fact be in effect at the time of its use.

The agency has determined that a limited relaxation of this principle will not adversely affect its enforcement authority, yet will both foster early compliance with impending requirements and ease manufacturer's difficulties in transition to new production procedures. Accordingly, the NHTSA will not consider the use of the symbol "DOT" on an item of motor vehicle equipment that is not subject to any applicable and effective standard to be "false or misleading" if the following conditions are met: (i) there has, as of the date of manufacture of the item of equipment, been issued as a final rule a Federal motor vehicle safety standard to which the item of equipment would, but for that date's being earlier than the standard's effective date, be subject; and (ii) the item of equipment meets all requirements set out in the standard as most recently published before the date of manufacture of the equipment. The NHTSA will continue to consider other, unauthorized uses of the symbol to be "false or misleading in a material respect" within the meaning of Section 108(a)-(1)(C) of the National Traffic and Motor Vehicle Safety Act of 1966, as amended (15 U.S.C. 1398(a)(1)(C)).

This interpretation will permit the requested stamping that is discussed above. It will not

permit the restamping, requested by several manufacturers, of previously manufactured rims that are in stock. These latter requests, however, are no longer of practical significance because of the other actions taken in this notice.

In consideration of the foregoing, the effective date of the amendment to 49 CFR Part 567, *Certification*, that was published on January 23, 1976 (49 FR 3478) is changed from September 1, 1976, to September 1, 1977, and changes are made to 49 CFR § 571.120 (Standard No. 120, *Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars*) . . . .

*Effective date:* These changes in the text of the Code of Federal Regulations should be made immediately.

(Sec. 103, 112, 114, 119, 201, 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1403, 1407, 1421, 1422); delegation of authority at 49 CFR 1.50.)

Issued on April 29, 1976.

Robert L. Carter  
Acting Administrator

**41 F.R. 18659**  
**May 6, 1976**

# PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION

(Docket No. 73-31; Notice 02)

The National Highway Traffic Safety Administration's Certification regulations for motor vehicles are amended to allow gross axle weight ratings to be combined on the certification label in the case of consecutive axles that have identical weight ratings. The amendment results from a suggestion from the Trailmobile Company and reflects the view that a separate listing for each GAWR can cause unnecessarily long certification labels that are more difficult to understand than labels containing combined axle weight ratings.

Dates: Effective date June 20, 1977.

Addresses: Requests for reconsideration should refer to the docket number and be submitted to: Docket Section, Room 5108, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590.

For further information contact:

Mr. David Fay  
Motor Vehicle Programs  
National Highway Traffic Safety  
Administration  
Washington, D.C. 20590  
(202) 426-2817

Supplementary information: Part 567 of NHTSA regulations (49 CFR Part 567, *Certification*) requires, among other things, a listing of the gross axle weight rating (GAWR) for each axle of the certified vehicle (§§ 567.4(g)(4), 567.5(a)(6)).

A manufacturer of trailers urged that a separate listing for each GAWR can, on many-axled vehicles, cause unnecessarily lengthy certification labels that are more difficult to understand than labels containing combined axle weight ratings. The NHTSA agreed and subsequently proposed an amendment of Part 567 to allow GAWRs to be combined on the certification label for consecutive axles that have identical weight ratings

(38 FR 33775, December 7, 1973). Each of the eight comments on the proposal supported the concept of combined GAWR ratings, and the NHTSA makes final the amendment essentially in the form proposed.

In response to a Ford question, the option of combining axle ratings as long as the tire designation is listed does not require that axle-by-axle listings also be accompanied by the tire designation. For clarification, the illustration of combined ratings is titled, "EXAMPLES OF COMBINED RATINGS."

International Harvester pointed out that the incomplete vehicle document provided to assist final-stage manufacturers should also be amended to permit the optional listing of combined GAWR listings. The agency agrees that such parallelism is logically justified and accordingly adds the option to the requirements of § 568.4 of Part 568.

International Harvester's understanding that the new language would permit a set of tandem axles to be listed together as the total value of the two separate GAWRs is incorrect. The agency only proposed a new method for statement of the GAWR, which is a concept applicable only to separate axle systems, not combinations of axle systems. It is noted that neither example appended to the proposed language would have suggested the incorrect understanding advanced by International Harvester.

The agency has also clarified that the new means of stating values is optional, by adding the phrase "at the option of the manufacturer" to the second sentence following the word "may."

In consideration of the foregoing, amendments are made in Chapter V of Title 49, Code of Federal Regulations,

Note—The economic and inflationary impacts of this rulemaking have been evaluated in accordance with OMB Circular A-107, and an Economic Impact Statement is not required.

Because the amendment provides an option and does not create additional obligations for any person, the agency finds that the amendment may become effective immediately.

The program official and lawyer principally responsible for this amendment are David Fay and Tad Herlihy, respectively.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on June 13, 1977.

Joan Claybrook  
Administrator

**42 F.R. 31161**  
**June 20, 1977**



## PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION

(Docket No. 73-31; Notice 031)

In an amendment of agency regulations on June 20, 1977, an incorrect format was published for the listing of tire information. This notice corrects that error by the replacement of the symbol "x" wherever it occurs, with the symbol "-".

Effective date: July 21, 1977.

For further information contact:

Mr. David Fay  
Motor Vehicle Programs  
National Highway Traffic Safety  
Administration  
Washington, D.C. 20590  
(202) 426-2817

Supplementary information: On June 20, 1977 (42 FR 31161), the NHTSA published an amendment to Part 567, *Certification*, and Part 568, *Vehicles Manufactured in Two or More Stages*, permitting the use of the "all axles" designation on the certification label where tire and rim information is identical for all axles. In that amendment, the agency erroneously listed a tire size example that used the symbol "x" to separate

tire width from diameter. Current agency regulations use the symbol "-" instead of "x". The agency by this notice corrects the June 20 notice to reflect current agency practice.

Accordingly, Volume 49 of the Code of Federal Regulations, Part 567.4(g)(4) and 567.5(a)(6) and Part 568.4(a)(5) are corrected by substituting the symbol "-" for the symbol "x" wherever it occurs in the examples listed thereunder.

The principal authors of this notice are David Fay of the Office of Motor Vehicle Programs and Roger Tilton of the Office of Chief Counsel.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on July 15, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**42 F.R. 37371**  
**July 21, 1977**



# PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION

(Docket No. 75-28; Notice 03)

This notice amends the regulations that specify how a truck manufacturer meets its statutory responsibility to certify compliance of its products with Federal motor vehicle safety standards. Most trucks are constructed in at least two separate stages and these regulations have required the basic "chassis-cab" manufacturer to provide necessary engineering calculations to the subsequent manufacturer that permit him to finish the vehicle and certify compliance. The decision in *Rex Chainbelt v. Brinegar*, 511 F.2d 1215 (7th Cir. 1975) directed the NHTSA to amend this regulation so that both manufacturers certify compliance to the degree their work affects the vehicle.

Date: Effective date July 25, 1977.

Addresses: Petitions for reconsideration should refer to the docket number and be submitted to: Docket Section, Room 5108, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590.

For further information contact:

David Fay  
Motor Vehicle Programs  
National Highway Traffic Safety  
Administration  
Washington, D.C. 20590  
(202) 426-2817

Supplementary information: This notice amends 49 CFR Part 567, *Certification*, by adding a labeling requirement for chassis-cab manufacturers and modifying the labeling requirements for final stage manufacturers, in accordance with the decision in *Rex Chainbelt, Inc. v. Brinegar*, 511 F.2d 1215 (7th Cir. 1975). Confirming amendments are made to 49 CFR Part 568, *Vehicles Manufactured in Two or More Stages*. Certification labeling requirements for intermediate manufacturers are proposed in a com-

panion notice issued today (Notice 4, 42 FR 378).

The notice is based on a proposal that was published as Notice 1 on October 3, 1975 (40 FR 45847). Seventeen comments were received in response to the proposal. The amendments are adopted essentially as proposed. The major change is that the list of permissible locations for the required certification labels has been extended to include the inward-facing surface of the driver's door, in order to accommodate the larger sizes of labels that can now be expected. Any submitted suggestions for changes that are not specifically mentioned herein are declined for action or proposal at this time, on the basis of all the information presently available to the agency.

The existing scheme for the certification of multistage vehicles is found in Parts 567 and 568 of Title 49, Code of Federal Regulations. Briefly, it requires a final-stage manufacturer to certify that his completed vehicle complies with all applicable Federal motor vehicle safety standards, on the basis of (i) the work he has performed and (ii) the information concerning the incomplete vehicle's conformity status with respect to each standard, found in a document (the "Part 568 document") supplied by those who have previously performed work on the incomplete vehicle. This scheme is more fully described in the notice of proposed rulemaking at 40 FR 45847.

Petitioners in the *Rex Chainbelt* case attacked the validity of the scheme as it applied to a company mounting cement mixers on chassis-cabs. The U.S. Court of Appeals for the Seventh Circuit, in its first opinion in this case, invalidated the scheme to the extent that it required a final-stage manufacturer who builds on a chassis-cab to make the "sole certification of compliance of the entire vehicle." *Rex Chainbelt, Inc. v. I'olpc*, 486 F.2d 757, 761-762 (7th Cir. 1973).

In its last opinion, the Court restated its holding as meaning that "in instances where the customer purchases a chassis-cab from its manufacturer and thereafter the mixer from the mixer manufacturer, the 'entire vehicle' must be certified via two certifications, with the chassis-cab manufacturer certifying its chassis-cab, and with the mixer manufacturer certifying its mixer and the effect of the mounting, if any, to thus obtain effective certification of the 'entire vehicle.'" *Reo Chainbelt, Inc. v. Brinegar*, 511 F.2d 1215, 1216 (7th Cir. 1975).

Parts 567 and 568 are amended today to conform to this decision. The basic change in Part 567 is to require the manufacturer of a chassis-cab to affix a certification label to his incomplete vehicle, certifying its conformity status with respect to each standard that will be applicable to the vehicle as completed. He will divide the standards into three categories, according to the degrees to which conformity with them is approached in his product, and certify essentially the same facts about them as have merely, up to now, been required to be indicated in the Part 568 document. The final stage manufacturer who uses the chassis-cab will then make a three-part certification statement (to the extent that the three parts are applicable), corresponding to the three statements made by the chassis-cab manufacturer.

More specifically, in the first category on its label, the chassis-cab manufacturer will state, "This chassis-cab conforms to Federal Motor Vehicle Safety Standard Nos. \_\_\_\_\_," listing the numbers of the standards for which the statement is correct. In the corresponding first category on its label, the final-stage manufacturer will state, "Conformity of the chassis-cab to Federal Motor Vehicle Safety Standard Nos. \_\_\_\_\_ has not been affected by final-stage manufacturer." This couplet conforms precisely to the mandate of the Court that the chassis-cab manufacturer certify its chassis-cab, and the final-stage manufacturer certify as to the "effect" of its work. It is not necessary for all the standards that were placed in the first category by the chassis-cab manufacturer to be similarly included by the final-stage manufacturer in his first category. The latter manufacturer is free to "affect" the manner in which the

completed vehicle conforms to any such standards, e.g., by removing and replacing mirrors or lights, as long as he ultimately certifies in his third (final) statement conformity to those affected standards. In the extreme case, if the final-stage manufacturer wishes to exclude all of the standards from the first category, he may omit this statement altogether.

The second category of standards, those that are necessarily strongly affected by what both the chassis-cab and final-stage manufacturers do, is the main target of the regulatory scheme. In its second statement the chassis-cab manufacturer will certify, "This vehicle will conform to Standard Nos. \_\_\_\_\_ if it is completed in accordance with the instructions contained in the incomplete vehicle document furnished pursuant to 49 CFR Part 568." The final-stage manufacturer's corresponding statement will be, "With respect to Standard Nos. \_\_\_\_\_, the vehicle has been completed in accordance with the chassis-cab manufacturer's instructions." This statement also conforms to the Court's opinion, although the treatment of this category cannot be as simple. The final-stage manufacturer, in considering a standard such as the one on air brakes that its work must crucially "affect," will thus have a choice. He may conform his completion work to the instructions of the chassis-cab manufacturer, in which case he need only make a statement to that effect, thereby throwing the burden of conformity onto the chassis-cab manufacturer. Or, he may deviate from those instructions, in which case the second statement becomes inapplicable as far as that standard is concerned, and instead include the standard in the residual third statement. Thus, the final-stage manufacturer will describe the "effect of [his] mounting, if any" either by saying he had remained within the Part 568 document's limits, thereby actuating the chassis-cab manufacturer's certification, or by making an original certification of conformity. Again, if the final-stage manufacturer chooses to omit all standards from this second category, the second statement may be omitted.

The third statement by the chassis-cab manufacturer will be, "Conformity to the other safety standards applicable to this vehicle when completed is not substantially affected by the design of the chassis-cab." The expression "substan-

tially affected" replaces "substantially determined," which appeared in the notice of proposed rulemaking, in order to clarify the meaning of this third statement. This subject is discussed further below. The third statement by the final-stage manufacturer will be, "This vehicle conforms to all other applicable Federal Motor Vehicle Safety Standards in effect in [month, year]." Obviously, conformity to standards concerning which the chassis-cab manufacturer makes no representation whatever, or to those where the final-stage manufacturer chooses not to follow the chassis-cab manufacturer's instructions, must be assumed by the final-stage manufacturer. The regulation provides that where the first two statements are omitted, the word "other" be omitted from the third statement. In this form it covers both the cases where the final-stage manufacturer chooses not to follow the chassis-cab manufacturer's instructions concerning any standards, and the cases involving incomplete vehicles other than chassis-cabs, to which the dual-certification scheme is inapplicable. Finally, it covers the cases where the final-stage manufacturer considers the simple conformity statement to adequately represent his rights and duties.

The Motor Vehicle Manufacturers Association (MVMA) and several chassis manufacturers objected to the chassis-cab manufacturer's type (1) certification, "[t]his chassis-cab conforms to Federal Motor Vehicle Safety Standard Nos. \_\_\_\_\_" on several grounds. The essence of these objections was that such a certification would be both misleading and beyond the statutory authority of the NHTSA to require, because there are no standards applicable to chassis-cabs. These commenters have referred to Section 114 of the National Traffic and Motor Vehicle Safety Act of 1966, as amended (15 U.S.C. 1291 *et seq.*) (the Act), which requires certification that each "[motor] vehicle or item of motor vehicle equipment conforms to all applicable Federal motor vehicle safety standards." They have correctly pointed out that a chassis-cab, because it is an incomplete vehicle, is not a "motor vehicle" as that term is defined in Section 102(3) of the Act. A chassis-cab is an item of "motor vehicle equipment," as that term is de-

finied in Section 102(4). While Federal motor vehicle safety standards have been issued for certain types of motor vehicle equipment, e.g., tires and motorcycle helmets, no such standards have been issued for chassis-cabs or other incomplete vehicles. The NHTSA agrees that the chassis-cab manufacturer's type (1) certification specified in the rule adopted today is therefore not the certification that is explicitly required by Section 114 of the Act. Even so, the NHTSA considers the former certification to be meaningful and appropriate as part of a scheme for ensuring the full certification of completed motor vehicles by the proper manufacturing parties. Conformity of a physical object (in this case, a chassis-cab) to a safety standard is a concept distinct from that standard's legal applicability to the object. For example, a chassis-cab is not statutorily required to conform to Standard No. 101, *Control Location, Identification, and Illumination*, because chassis-cabs are not listed in *S3, Application* of that standard. Nevertheless, a chassis-cab that does in fact meet the substantive requirements of the standard is accurately described as "conforming" to it.

The NHTSA does not consider the type (1) certification to be misleading provided that it is factually accurate. Any intimation to the reader of such a statement that the safety standards enumerated in it are applicable to the chassis-cab is outweighed by the need for full certification of completed motor vehicles. An untrue type (1) statement, of course, would be considered a non-compliance with 49 CFR Part 567.

Ford Motor Company has suggested that, through the new certification scheme, the NHTSA seeks to impose safety standards on chassis-cabs indirectly—without a statutorily required consideration of whether they are "reasonable, practicable, or appropriate for the particular type of motor vehicle or item of motor vehicle equipment for which [they are] prescribed." This characterization of the new scheme is incorrect. With the three part certification statement, the chassis-cab manufacturer is merely certifying his product's *status* of conformity with respect to each of the safety standards that apply to the completed vehicle. The only standards to which a chassis-cab must actually conform are those that

he has placed in the first category, and he is free to leave that category empty by including all the standards in the succeeding two.

Indeed, the NHTSA has specifically rejected the concept, urged by Ford and others, of Federal motor vehicle safety standards that apply to chassis-cabs. It is the completed motor vehicle with which the NHTSA is most concerned, because that is what is driven on the public highways. The performance capabilities of a chassis-cab affect motor vehicle safety only through their effect on the performance of the vehicle into which the chassis-cab is completed. The consequent inappropriateness of standards applicable to chassis-cabs was discussed fully in the notice of proposed rulemaking.

The MVMA and several chassis manufacturers also objected to the second type of chassis-cab certification—that the chassis-cab will conform to enumerated standards if it is completed in accordance with the instructions found in the incomplete vehicle document. These commenters argued that such a certification statement would require the chassis-cab manufacturer to anticipate conduct over which he has no control. Because conditions on subsequent manufacturing are contained *within* a chassis-cab manufacturer's type (2) certification statement, however, the statement's truth or falsehood is established at the time of chassis-cab manufacture. The work that is actually performed on a chassis-cab following such a certification has no bearing on that truth or falsehood. These objections are thus without foundation. The chassis-cab manufacturer is protected against the wide variety of possible methods of completion over which the NHTSA readily agrees he has no control.

In a similar vein, the MVMA suggested that the chassis-cab certification statements would be susceptible to amendments made to the standards between the time of manufacture of the chassis-cab and the completion of the vehicle, and would thus be unacceptably open-ended. The MVMA is mistaken. The NHTSA interprets all the statements on the chassis-cab manufacturer's label as made with respect to the Federal motor vehicle safety standards in effect at the time of manufacture of the chassis-cab, as that time is indicated on the label.

As noted in the notice of proposed rulemaking, there is a factual limitation on the chassis-cab manufacturer's use of the third type of certification. Where the chassis design is an important determinant of a vehicle's ability to conform to a given standard, it is incorrect to state (whether on a certification label or in a Part 568 document) that conformity to that standard is "not substantially determined by the design of the chassis-cab." Ford and General Motors objected to this position, arguing that where the work of the final-stage manufacturer substantially determines conformity, the design of the chassis-cab must of necessity *not* substantially determine conformity. The NHTSA rejects these objections. It is possible for a completed vehicle's conformity to a standard to be substantially determined by *both* the design of the chassis-cab and the manner of completion by the final-stage manufacturer. Indeed, this is often the case with the braking standards and the fuel system integrity standard, among others. To more precisely characterize the agency's intention and to eliminate further confusion on this subject, the expression "substantially determined" in the chassis-cab manufacturers' type (3) certification is replaced by "substantially affected". In addition, an interpretive amendment is made to the description in Part 568 of the incomplete vehicle document, to effect the same substitution.

Rexnord, Inc. (formerly Rex Chainbelt) argued that the proposed certification scheme would not comply with the *Rex Chainbelt* holding because it would require "that the Final Mfr. certify the Chassis Mfr.'s materials, workmanship and design in some situations." The situations referred to are those in which a final-stage manufacturer affects the manner of conformity to a standard to which the chassis-cab has been certified in category (1) or departs from the completion instructions for a standard respecting which the chassis-cab has been certified in category (2). Rexnord objects to the requirement that, in these situations, the final-stage manufacturer "unconditionally" certify the completed vehicle in category (3), on the ground that he should be able to "preserve so much of the prior certification as he has a right to rely on" despite his departure from the anticipated manner of completion.

The infinite number of modifications that can be made by a final-stage manufacturer in departing from the incomplete-vehicle manufacturer's disposition make "preservation" of the remnants of a prior certification extremely difficult under the general allocation provisions of Part 567. For this reason, the final-stage manufacturer must rely on the requirement that the chassis-cab manufacturer's certification is permanently affixed to the vehicle and thereby "preserves" that portion of the prior certification that can continue to be relied upon.

Rexnord also argued that the completion instructions supplied by chassis-cab manufacturers are often unreasonably restrictive. It urged that a new regulation be established to require those manufacturers to test and certify various "approved modifications" of their chassis-cabs. The NHTSA considers such an approach to be as unwise as the establishment of chassis-cab standards. While there may be many instances in which the chassis manufacturer is in a better position than the final-stage manufacturer to take responsibility for the safety of a modification to the chassis, the variety of manufacturing situations militates against government interference with the freedom of manufacturers to allocate responsibility among themselves as they find it most appropriate.

In response to Rexnord's suggestion, the rule specifies that the name of the chassis-cab manufacturer be preceded on the label affixed by him by the words "CHASSIS-CAB MANUFACTURED BY" or "CHASSIS-CAB MFD BY". Omission of these words from the proposed rule was an oversight. The additional suggestion that the final-stage manufacturer's name be preceded on his label by "FINAL STAGE MANUFACTURE BY" (or an abbreviation) rather than "MANUFACTURED BY" (or an abbreviation), however, is not adopted. Even though the latter designation may oversimplify the final-stage manufacturer's status, such a characterization is necessitated by the Act. In any event, the intimation that he is responsible for the entire vehicle is negated by the accompanying identification of the chassis-cab manufacturer.

The NHTSA declines the suggestion of Mack Trucks that Gross Vehicle and Gross Axle Weight

Ratings be required, or at least permitted as an option, to appear on the chassis-cab label. There is great potential for user confusion if chassis-cab and final-stage manufacturers' labels indicate different weight ratings. The need to avoid this confusion outweighs an interest in placarding weight ratings other than those of the completed vehicle. Therefore, Rexnord's request—that the final stage manufacturer who does not depart from a chassis-cab manufacturer's weight ratings be permitted to refrain from "restating" those ratings—cannot be granted.

The Recreation Vehicle Industry Association (RVIA) suggested a change in the definition of "chassis-cab" to include certain incomplete vehicles that are completed as motor homes. These "chopped vans" and "Type C" motor home chassis, however, appear to lack the prerequisite completed occupant compartments of the proposed definition. Because completeness of the occupant compartment is what sets chassis-cabs apart from other incomplete vehicles, the RVIA suggestion is declined. Accordingly, the definition is adopted as proposed. For convenience, it is located in § 567.3 rather than the definitions section of Part 571 of this title. Manufacturers are reminded that Part 568 continues to require the provision of a document with every incomplete vehicle, regardless of whether the incomplete vehicle, by virtue of being a chassis-cab, is also required by the rule issued today to be certified.

The new chassis-cab certification requirements will take effect in one year. This is longer than all the lead times requested by commenters. It provides ample time for chassis-cab manufacturers to prepare for compliance. It also enables the NHTSA to evaluate the comments and take final action on the accompanying proposal to add certification requirements for intermediate manufacturers with sufficient lead time remaining for those manufacturers.

In consideration of the foregoing, the amendments are made in Chapter V of Title 49, Code of Federal Regulations.

*Effective dates:* Part 567: All changes to the text of the Code of Federal Regulations should be made immediately, to minimize confusion resulting from changes in the designation of para-

graphs. The chassis-cab labeling requirements are effective as indicated in § 567.5(a). Findings: Because § 567.5(e) allows an alternative means of compliance with requirements previously set out in § 567.5(a) and creates no additional burden, the National Highway Traffic Safety Administration finds that an immediate effective date is in the public interest. Paragraphs (d) through (f) of § 567.5 are simply the prior paragraphs (b) through (d) transposed, with corrected cross-references. Because the amendment to § 567.1(e) also allows an alternative means of compliance and creates no additional burden, the NHTSA finds that an immediate effective date for this amendment is also in the public interest. Similarly, the addition of a definition to § 567.3 creates no additional burden.

Part 568: These amendments are effective immediately. The amendment to § 568.4(a) (7) is interpretive in nature. Because the amendments

to §§ 568.6 and 568.7 relieve restrictions and create no additional burdens, the NHTSA finds that an immediate effective date for them is also in the public interest.

The principal program official and lawyer responsible for preparation of this rulemaking document are David Fay and Mark Schwimmer, respectively.

(Sec. 103, 108, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1397, 1401, 1403, 1407); delegation of authority at 49 CFR 1.50.)

Issued on July 8, 1977.

Joan Claybrook  
Administrator

42 F.R. 37814  
July 25, 1977



## PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION OF MULTISTAGE VEHICLES

(Docket No. 75-28; Notice 51)

*Agency:* National Highway Traffic Safety Administration, DOT.

*Action:* Correction.

*Summary:* In an amendment of the agency's certification regulations published July 25, 1977, an incorrect format was established for the listing of tire information. This notice corrects that error and another minor error in the wording of the regulation.

*Effective date:* September 19, 1977.

*For further information contact:*

Mr. David Fay, Motor Vehicle Programs,  
National Highway Traffic Safety Administration,  
Washington, D.C. 20590  
(202-426-2817)

*Supplementary information:* On July 25, 1977 (42 FR 37814), the NHTSA published an amendment of Part 567, *Certification*, and Part 568, *Vehicles Manufactured in Two or More Stages*, which prescribed regulations for vehicle certification. In that amendment, the agency erroneously listed a tire size example that used the symbol "x" to separate the tire width from diameter. Current agency regulations use the

symbol "-" instead of "x". Accordingly, Part 567.5(c)(6) of Title 49 of the Code of Federal Regulations is corrected by the substitution of the symbol "-" for the symbol "x" wherever it occurs in the example listed thereunder.

The second sentence in Part 567.5(c)(7)(ii) is corrected to read: "The statement shall be completed by inserting the numbers of all or less than all of the standards, and only those standards, to which the chassis-cab manufacturer has made the conditional certification under paragraph (a)(2) of this section."

The principal author of this document is Roger Tilton of the Office of Chief Counsel.

(Sees. 103, 108, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1397, 1401, 1403, 1407); delegations of authority at 49 CFR 1.50 and 501.8.)

Issued on September 14, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

42 F.R. 46927  
September 19, 1977



# PREAMBLE TO AMENDMENT TO PART 567—CERTIFICATION AND PART 568—VEHICLES MANUFACTURED IN TWO OR MORE STAGES

(Docket No. 75; Notice 5)

*Agency:* National Highway Traffic Safety Administration, DOT.

*Action:* Final Rule.

*Summary:* This amendment specifies the manner in which intermediate stage manufacturers of trucks must certify compliance with Federal motor vehicle safety standards. Some vehicles are constructed in three or more separate stages. Current regulations require only that the first and final manufacturers certify compliance to the degree that their work affects the vehicle. This amendment includes the "intermediate stage" manufacturer in the certification scheme and completes revisions of the regulations required by *Rex Chainbelt v. Brinegar*, 511 F.2d 1215 (7th Cir. 1975).

*Effective date:* July 2, 1978.

*For further information contact:*

David Fay, Engineering Systems Staff,  
National Highway Traffic Safety Administration, Washington, D.C. 20590  
(202-426-2817).

*Supplementary information:* This notice amends 49 CFR Part 567, *Certification*, to add a labeling requirement for intermediate manufacturers who perform work on chassis-cabs. Conforming amendments to 49 CFR Part 568, *Vehicles Manufactured in Two or More Stages*, are also made.

On July 25, 1977, the NHTSA published in the *Federal Register* (42 FR 37831) a notice proposing to amend the agency's certification regulations by adding certification responsibilities for intermediate manufacturers. That action

was responsive to the decision in *Rex Chainbelt*. Currently, intermediate manufacturers are the only major manufacturers in the chain of multi-stage manufacturing without certification responsibilities. To complete the certification scheme, the agency proposed to require certification by intermediate manufacturers which would indicate that such manufacturer had complied with all of the safety standards applicable to his manufacturing operation. A complete explanation of the intermediate manufacturer's certification responsibilities was printed in the notice proposing the amendment and will not be reprinted here.

No comments were received in response to the notice of proposed rulemaking. Accordingly, the agency adopts, as final, the proposal as it was issued. The agency has reviewed the costs of this regulation and concludes that they are the minimum necessary for compliance with the *Rex Chainbelt* decision.

The principal authors of this notice are David Fay of the Engineering Systems Staff and Roger Tilton of the Office of Chief Counsel.

In consideration of the foregoing, Chapter V of Title 49, Code of Federal Regulations, is amended. . . .

(Secs. 103, 108, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1397, 1401, 1403, 1407); delegation of authority at 49 CFR 1.50.)

Issued on March 1, 1978.

Joan Claybrook  
Administrator

43 F.R. 9604  
March 9, 1978



## PREAMBLE TO PART 567—CERTIFICATION BUMPER STANDARD

(Docket No. 73-19; Notice 24)

*Agency:* National Highway Traffic Safety Administration, (NHTSA).

*Action:* Final Rule.

*Summary:* This notice amends the method by which manufacturers are required to certify compliance with applicable Federal safety standards to require, in the case of passenger cars, simultaneous certification of compliance with Federal bumper standards.

*Effective date:* May 22, 1978.

*For further information contact:*

Mr. David Fay, Engineering Systems Staff,  
National Highway Traffic Safety Administration,  
Washington, D.C. 20590  
(202-426-2817).

*Supplementary information:* On March 6, 1978, the NHTSA published a notice (43 FR 9167) proposing to amend 49 CFR Part 567, *Certification*, to implement § 105(c) of the Motor Vehicle Information and Cost Savings Act (the Act) (15 U.S.C. § 1901, et seq.), which requires certification of compliance with applicable bumper standards. The agency proposed that the manufacturer or distributor of a passenger car furnish to the distributor or dealer at the time of delivery, a single certification of compliance with all applicable safety and bumper standards. The proposal fulfilled the statutory labeling requirements and avoided the cost and inconvenience of requiring a separate bumper certification label, by simply supplementing the existing requirements of Part 567 for certification to applicable safety standards.

No unfavorable comments were received on the concept of allowing a single certification label for both safety and bumper requirements. One commenter suggested that the agency also encompass the fuel economy standards of Title V of the Act within the certification requirement of Part 567. However, Title V imposes average fuel economy requirements on manufacturer's fleets as a whole rather than on individual vehicles, making fuel economy certification labels inappropriate.

General Motors suggested allowing the label applicable to passenger cars to be used, at the manufacturer's option, on non-passenger vehicles as well, maintaining that use of two different labels could lead to control problems and increased costs. The same statement that the vehicle meets "all applicable safety and bumper standards" could technically be used on non-passenger vehicles because no bumper standards are "applicable" to this vehicle type. The agency declines to adopt General Motors' proposal, however, because consumers may be misled by such a statement into assuming that non-passenger vehicles also meet a bumper performance standard.

Several manufacturers pointed out that the proposed immediate effective date for the change would not allow sufficient lead time for preparation and printing of certification labels. To avoid difficulty in phasing in the new certification labels, the amendment has been modified to allow conversion to the new label at any time prior to September 1, 1978. This change is consistent with the provision of § 571.215 which permits the manufacture of Part 581 bumpers prior to September 1, 1978, and will not be misleading since all vehicles bearing the new label will in fact comply with either the Standard 215 or Part 581 bumper requirements.



The principal author of this notice is Richard Hipolit, Office of Chief Counsel.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); secs. 102, 105, Pub. L. 92-513, 86 Stat. 947 (15 U.S.C. 1912, 1945); delegation of authority at 49 CFR 1.50.)

Issued on May 15, 1978.

Joan Claybrook  
Administrator

**43 F.R. 21890**  
**May 22, 1978**





## PART 567—CERTIFICATION

(Dockets No. 73-31 and 75-28)

### § 567.1 Purpose and scope.

The purpose of this part is to specify the content and location of, and other requirements for, the label or tag to be affixed to motor vehicles required by section 114 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1403) (the Act) and by section 105(c)(1) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. § 1915(c)(1)) (the Cost Savings Act), and to provide the consumer with information to assist him in determining which of the Federal Motor Vehicle Safety Standards (Part 571 of this chapter) (Standards) are applicable to the vehicle.

### § 567.2 Application.

(a) This part applies to manufacturers and distributors of motor vehicles to which one or more standards are applicable.

(b) In the case of imported motor vehicles, the requirements of affixing a label or tag applies to importers of vehicles, admitted to the United States under § 12.80(b)(1) of the joint regulations for importation of motor vehicles and equipment (19 CFR 12.80(b)(1)) to which the required label or tag is not affixed.

### § 567.3 Definitions.

All terms that are defined in the Act and the rules and standards issued under its authority are used as defined therein. The term "bumper" has the meaning assigned to it in Title I of the Cost Savings Act and the rules and standards issued under its authority.

"Chassis-cab" means an incomplete vehicle, with a completed occupant compartment, that requires only the addition of cargo-carrying, work-performing, or load-bearing components to perform its intended functions.

### § 567.4 Requirements for manufacturers of motor vehicles.

(a) Each manufacturer of motor vehicles (except vehicles manufactured in two or more stages) shall affix to each vehicle a label, of the type and in the manner described below, containing the statements specified in paragraph (g) of this section.

(b) The label shall, unless riveted, be permanently affixed in such a manner that it cannot be removed without destroying or defacing it.

(c) Except for trailers and motorcycles, the label shall be affixed to either the hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver's seating position, or if none of these locations is practicable, to the left side of the instrument panel. If that location is also not practicable, the label shall be affixed to the inward-facing surface of the door next to the driver's seating position. If none of the preceding locations is practicable, notification of that fact, together with drawings or photographs showing a suggested alternate location in the same general area, shall be submitted for approval to the Administrator, National Highway Traffic Safety Administration, Washington, D.C. 20590. The location of the label shall be such that it is easily readable without moving any part of the vehicle except an outer door.

(d) The label for trailers shall be affixed to a location on the forward half of the left side, such that it is easily readable from outside the vehicle without moving any part of the vehicle.

(e) The label for motorcycles shall be affixed to a permanent member of the vehicle as close as is practicable to the intersection of the steering post with the handle bars, in a location such that it is easily readable without moving any part of the vehicle except the steering system.

(f) The lettering on the label shall be of a color that contrasts with the background of the label.

(g) The label shall contain the following statements, in the English language, lettered in block capitals and numerals not less than three thirty-seconds of an inch high, in the order shown:

(1) Name of manufacturer: Except as provided in (i), (ii), and (iii) below, the full corporate or individual name of the actual assembler of the vehicle shall be spelled out, except that such abbreviations as "Co." or "Inc." and their foreign equivalents, and the first and middle initials of individuals, may be used. The name of the manufacturer shall be preceded by the words "Manufactured By" or "Mfd By." In the case of imported vehicles, where the label required by this section is affixed by a person other than the final assembler of the vehicle, the corporate or individual name of the person affixing the label shall also be placed on the label in the manner described in this paragraph, directly below the name of the final assembler.

(i) If a vehicle is assembled by a corporation that is controlled by another corporation that assumes responsibility for conformity with the standards, the name of the controlling corporation may be used.

(ii) If a vehicle is fabricated and delivered in complete but unassembled form, such that it is designed to be assembled without special machinery or tools, the fabricator of the vehicle may affix the label and name itself as the manufacturer for the purposes of this section.

(iii) If a trailer is sold by a person who is not its manufacturer, but who is engaged in the manufacture of trailers and assumes legal responsibility for all duties and liabilities imposed by the Act with respect to that trailer, the name of that person may appear on the label as the manufacturer. In such a case the name shall be preceded by the words "Responsible Manufacturer" or "Resp Mfr."

(2) Month and year of manufacture: This shall be the time during which work was com-

pleted at the place of main assembly of the vehicle. It may be spelled out, as "June 1970," or expressed in numerals, as "6/70."

(3) "**GROSS VEHICLE WEIGHT RATING**" or "**GVWR**" followed by the appropriate value in pounds, which shall not be less than the sum of the unloaded vehicle weight, rated cargo load, and 150 pounds times the vehicle's designated seating capacity. However, for school buses the minimum occupant weight allowance shall be 120 pounds.

(4) "**Gross Axle Weight Rating**" or "**GAWR**" followed by the appropriate value in pounds, for each axle, identified in order from front to rear (e.g., front, first intermediate, second intermediate, rear). The ratings for any consecutive axles having identical gross axle weight ratings when equipped with tires having the same tire size designation may, at the option of the manufacturer, be stated as a single value, with the label indicating to which axles the ratings apply.

#### EXAMPLES OF COMBINED RATINGS GAWR:

(a) All axles—4080 with 7.00–15 LT(D) tires.

(b) Front—12,000 with 10.00–20 (G) tires.

First intermediate to rear—15,000 with 12.00–20 (H) tires.

(5) The statement: "This vehicle conforms to all applicable Federal motor vehicle safety standards in effect on the date of manufacture shown above." The expression "U.S." or "U.S.A." may be inserted before the word "Federal." However, in the case of passenger cars, the expression "and bumper"—

(i) May, at the option of the manufacturer, be included in the statement following the word "safety"; and

(ii) Shall be included in the statement following the word "safety" in the case of passenger cars manufactured on or after September 1, 1978.

(6) Vehicle identification number.

(7) The type classification of the vehicle as defined in § 571.3 of Title 49 of the Code of Federal Regulations (e.g., truck, MPV, bus, trailer).

(h) Multiple GVWR-GAWR ratings.

(1) (For passenger cars only) In cases where different tire sizes are offered as a customer option, a manufacturer may at his option list more than one set of values for GVWR and GAWR, in response to the requirements of paragraphs (g)(3) and (4) of this section. If the label shows more than one set of weight rating values, each value shall be followed by the phrase "with ----- tires," inserting the proper tire size designations. A manufacturer may at his option list one or more tire sizes where only one set of weight ratings is provided.

*Passenger Car Example*

GVWR:

4400 LB with G78-14B Tires. 4800 LB with H78-14B Tires.

GAWR:

Front—2000 LB with G78-14B Tires at 24 psi, 2200 LB with H78-14B Tires at 24 psi.

Rear—2400 LB with G78-Tires at 28 psi, 2600 LB with H78-14B Tires at 28 psi.

(2) (For multipurpose passenger vehicles, trucks, buses, trailers, and motorcycles) The manufacturer may, at its option, list more than one GVWR-GAWR-tire-rim-combination on the label, as long as the list conforms in content and format to the requirements for tire-rim-inflation information set forth in Standard No. 120 of this chapter (§ 571.120).

(3) At the option of the manufacturer, additional GVWR-GAWR ratings for operation of the vehicle at reduced speeds may be listed at the bottom of the certification label following any information that is required to be listed.

(i) A manufacturer may, at his option, provide information concerning which tables in the document that accompanies the vehicle pursuant to § 575.6(a) of this chapter apply to the vehicle. This information may not precede or interrupt the information required by paragraph (g).

**§ 567.5 Requirements for manufacturers of vehicles manufactured in two or more stages.**

(a) Except as provided in paragraph (e) of this section, each manufacturer of a chassis-cab

shall affix a label to each chassis-cab manufactured on or after July 25, 1978, in the location and form specified in § 567.4, that contains the following statements, to the extent that they are applicable.

(1) "This chassis-cab conforms to Federal Motor Vehicle Safety Standard Nos. \_\_\_\_\_. The statement shall be completed by inserting the numbers of the safety standards (e.g., 101, 207) to which the chassis-cab conforms.

(2) "This vehicle will conform to Standard Nos. \_\_\_\_\_ if it is completed in accordance with the instructions contained in the incomplete vehicle document furnished pursuant to 49 CFR Part 568." The statement shall be completed by inserting the numbers of the safety standards conformity to which is substantially affected by both the design of the chassis-cab and the manner in which the vehicle is completed (i.e., the standards listed under category (ii) in paragraph 568.4(a)(7) of this chapter).

(3) "Conformity to the other safety standards applicable to this vehicle when completed is not substantially affected by the design of the chassis-cab."

(4) Name of chassis-cab manufacturer preceded by the words "CHASSIS-CAB MANUFACTURED BY" or "CHASSIS-CAB MFD BY".

(5) Month and year of manufacture of chassis-cab. This may be spelled out, as in "June 1970", or expressed in numerals, as in "6/70". No preface is required.

(b) Except as provided in paragraphs (e) and (f) of this section, each intermediate manufacturer of a vehicle manufactured in two or more stages shall affix a label, in the location and form specified in § 567.4, to each chassis-cab respecting which he is required by § 568.5 to furnish an addendum to the incomplete vehicle document described in § 568.4. However, this paragraph applies only to chassis-cabs that have been certified by a chassis-cab manufacturer in accordance with paragraph (a) of this section. The label shall contain the following statements as appropriate:

(1) (i) "With respect to Standard Nos. \_\_\_\_\_, the instructions of prior manufacturers have been followed so that the chassis-cab now conforms to these standards." The statement shall be completed by inserting the numbers of all or less than all of the standards, and only those standards, respecting which the latest prior certification statement was in the form prescribed in paragraphs (a) (2) or (b) (2) of this section.

(ii) "This chassis-cab conforms to Federal Motor Vehicle Safety Standard Nos. \_\_\_\_\_." The statement shall be completed by inserting the numbers of the other standards to which the chassis-cab conforms, excluding those standards respecting which the latest prior certification statement was in the form prescribed in paragraphs (a) (1), (b) (1) (i), or this paragraph.

(2) "This vehicle will conform to Standard Nos. \_\_\_\_\_ if it is completed in accordance with the instructions contained in the amended incomplete vehicle document furnished pursuant to 49 CFR Part 568." The statement shall be completed by inserting the numbers of the standards conformity to which is substantially affected by both the design of the chassis-cab (as modified by the intermediate manufacturer) and the manner in which the vehicle is completed.

(3) "Conformity to Standard Nos. \_\_\_\_\_ is no longer substantially affected by the design of this chassis-cab." The statement shall be completed by inserting the numbers of all or less than all of the standards, and only those standards, respecting which the latest prior certification statement was in the form prescribed in paragraphs (a) (1), (a) (2), (b) (1) (i), (b) (1) (B), or (b) (2) of this section.

(4) Name of intermediate manufacturer, preceded by the words "INTERMEDIATE MANUFACTURE BY" or "INTERMEDIATE MFR BY".

(5) Month and year in which the intermediate manufacturer performed his last manufacturing operation on the chassis-cab. This may be spelled out, as "JUNE 1970", or expressed as numerals, as "6/70". No preface is required.

(c) \* \* \*

(7) The following statements, as appropriate. Statements (i) and (ii) shall be made only for vehicles that were originally delivered by an incomplete vehicle manufacturer or an intermediate manufacturer as a chassis-cab.

(i) "Conformity of the chassis-cab to Federal Motor Vehicle Safety Standard Nos. \_\_\_\_\_ has not been affected by final-stage manufacture." The statement shall be completed by inserting the numbers of all or less than all of the standards, and only those standards, respecting which the latest prior certification statement was made by a chassis-cab manufacturer pursuant to paragraph (a) (1) of this section or by an intermediate manufacturer pursuant to paragraphs (b) (1) (i) or (b) (1) (ii) of this section. This statement may be omitted at the discretion of the final-state manufacturer.

(ii) "With respect to Standard Nos. \_\_\_\_\_, the vehicle has been completed in accordance with the prior manufacturers' instructions." The statement shall be completed by inserting the numbers of all or less than all of the standards, and only those standards, respecting which the latest prior certification statement was a chassis-cab manufacturer's conditional statement under paragraph (a) (2) of this section or an intermediate manufacturer's conditional statement under paragraph (b) (2) of this section. This statement may be omitted at the discretion of the final stage manufacturer.

(c) Except as provided in paragraphs (e) and (f) of this section, each final-stage manufacturer, as defined in § 568.3 of Title 49 of the Code of Federal Regulations, of a vehicle manufactured in two or more stages shall affix to each vehicle a label, of the type and in the manner and form described in § 567.4 of this part, containing the following statements:

(1) Name of final-stage manufacturer, preceded by the words "MANUFACTURED BY" or "MFD BY".

(2) Month and year in which final-stage manufacture is completed. This may be spelled out, as in "JUNE 1970", or expressed in numerals, as in "6/70". No preface is required.

(3) Name of original manufacturer of the incomplete vehicle, preceded by the words "INCOMPLETE VEHICLE MANUFACTURED BY" or "INCOMPLETE VEHICLE MANUFACTURED BY". This item and item (4) may be omitted in cases where the incomplete vehicle was a chassis-cab.

(4) Month and year in which the original manufacturer of the incomplete vehicle performed his last manufacturing operation on the incomplete vehicle, in the same form as (2) above.

(5) "GROSS VEHICLE WEIGHT RATING" or "GVWR", followed by the appropriate value in pounds, which shall not be less than the sum of the unloaded vehicle weight, rated cargo load, and 150 pounds times the vehicle's designated seating capacity. However, for school buses the minimum occupant weight allowance shall be 120 pounds.

(6) "GROSS AXLE WEIGHT RATING" or "GAWR", followed by the appropriate value in pounds for each axle, identified in order from front to rear (*e.g.*, front, first intermediate, second intermediate, rear). The ratings for any consecutive axles having identical gross axle weight ratings when equipped with tires having the same tire size designation may be stated as a single value, with the label indicating to which axles the ratings apply.

#### Examples of Combined Ratings

##### GAWR:

- (a) All axles—4080 with 7.00-15 LT(D) tires.
- (b) Front—12,000 with 10.00-20 (G) tires.

First intermediate to rear—15,000 with 12.00-20 (H) tires.

(7) The following statements, as appropriate. Statements (i) and (ii) shall be made only for vehicles that were originally delivered by an incomplete vehicle manufacturer as a chassis-cab.

(i) "Conformity of the chassis-cab to Federal Motor Vehicle Safety Standard Nos. \_\_\_\_\_ has not been affected by final-stage manufacture." The statement shall be completed by inserting the numbers of all or less than all of the standards, and only those standards, to which the chassis-cab manufacturer has certified the vehicle

under paragraph (a)(1) of this section. This statement may be omitted at the discretion of the final-stage manufacturer.

(ii) "With respect to Standard Nos. \_\_\_\_\_, the vehicle has been completed in accordance with the chassis-cab manufacturer's instructions." The statement shall be completed by inserting the numbers of all or less than all of the standards, and only those standards, to which the chassis-cab manufacturer has made the conditional certification under paragraph (a)(2) of this section. This statement may be omitted at the discretion of the final-stage manufacturer.

(iii) "This vehicle conforms to all other applicable Federal Motor Vehicle Safety Standards in effect in [month, year]." The date shown shall be no earlier than the manufacturing date of the incomplete vehicle, and not later than the date of completion of final-stage manufacture. This statement may be omitted only if all standards applicable to the completed vehicle have been listed in the preceding two statements. If the first two statements are both omitted, the word "other" shall be omitted from this statement.

(8) Vehicle identification number.

(9) The type classification of the vehicle as defined in § 571.3 of Title 49 of the Code of Federal Regulations (*e.g.*, truck, MPV, bus, trailer).

(d) More than one set of figures for GVWR and GAWR, and one or more tire sizes, may be listed in satisfaction of the requirements of paragraphs (c)(5) and (6) of this section, as provided in § 567.4(h).

(e) If an incomplete vehicle manufacturer assumes legal responsibility for all duties and liabilities imposed by the Act, with respect to the vehicle as finally manufactured, the incomplete vehicle manufacturer shall ensure that a label is affixed to the final vehicle in conformity with paragraph (c) of this section, except that the name of the incomplete vehicle manufacturer shall appear instead of the name of the final-stage manufacturer after the words "MANUFACTURED BY" or "MFD BY" required by subparagraph (c)(1) of this section, the additional manufacturer's name required by subparagraph

(c) (3) of this section shall be omitted, and the date required by subparagraph (c) (4) of this section shall be preceded by the words "INCOMPLETE VEHICLE MANUFACTURED" or "INC VEH MFD."

(f) If an intermediate manufacturer of a vehicle assumes legal responsibility for all duties and liabilities imposed on manufacturers by the Act, with respect to the vehicle as finally manufactured, the intermediate manufacturer shall ensure that a label is affixed to the final vehicle in conformity with paragraph (c) of this section, except that the name of the intermediate manufacturer shall appear instead of the name of the final-stage manufacturer after the words "MANUFACTURED BY" or "MFD BY" required by subparagraph (C) (1) of this section.

**§ 567.6 Requirements for persons who do not alter certified vehicles or do so with readily attachable components.**

A person who does not alter a motor vehicle or who alters such a vehicle only by the addition, substitution, or removal of readily attachable components such as mirrors or tire and rim assemblies, or minor finishing operations such as painting, in such a manner that the vehicle's stated weight ratings are still valid, need not affix a label to the vehicle, but shall allow a manufacturer's label that conforms to the requirements of this part to remain affixed to the vehicle. If such a person is a distributor of the motor vehicle, allowing the manufacturer's label to remain affixed to the vehicle shall satisfy the distributor's certification requirements under the Act.

**§ 567.7 Requirements for persons who alter certified vehicles.**

A person who alters a vehicle that has previously been certified in accordance with § 567.4 or § 567.5, other than by the addition, substitu-

tion, or removal of readily attachable components such as mirrors or tire and rim assemblies, or minor finishing operations such as painting, or who alters the vehicle in such a manner that its stated weight ratings are no longer valid, before the first purchase of the vehicle in good faith for purposes other than resale, shall allow the original certification label to remain on the vehicle, and shall affix to the vehicle an additional label of the type and in the manner and form described in § 567.4, containing the following information:

(a) The statement: "This vehicle was altered by (individual or corporate name) in (month and year in which alterations were completed) and as altered it conforms to all applicable Federal Motor Vehicle Safety Standards affected by the alteration and in effect in (month, year)." The second date shall be no earlier than the manufacturing date of the original vehicle, and no later than the date alterations were completed. However, in the case of passenger cars, the expression "and bumper"—

(1) May, at the option of the manufacturer, be included in the statement following the word "safety"; and

(2) Shall be included in the statement following the word "safety" in the case of passenger cars manufactured on or after September 1, 1978.

(b) If the gross vehicle weight rating or any of the gross axle weight ratings of the vehicle as altered are different from those shown on the original certification label, the modified values shall be provided in the form specified in § 567.4(g) (3) and (4).

(c) If the vehicle as altered has a different type classification from that shown on the original certification label, the type as modified shall be provided.

36 F.R. 7054  
April 14, 1971

**PREAMBLE TO PART 568—VEHICLES MANUFACTURED IN TWO OR MORE STAGES**  
**(Dockets No. 70-6, 70-8, and 70-15)**

This notice adopts a new Part 568 in Title 49, Code of Federal Regulations, to require the furnishing of information relevant to a vehicle's conformity to motor vehicle safety standards, and makes complementary changes in the certification regulations in Part 567 of that title and in Part 571. It also amends the certification regulations with respect to the manufacturer whose name must appear on the label for trailers and with respect to the information that must appear on the label for all vehicles. Notices of proposed rulemaking on these subjects were published on March 17, 1970 (35 F.R. 4639), May 1, 1970 (35 F.R. 6969), and June 13, 1970 (35 F.R. 9293). The comments received in response to these notices, and the statements made at the public meeting on vehicles manufactured in two or more stages (September 18, 1970; 35 F.R. 13139) have been considered in this issuance of a final rule.

In adopting the new Part 568, *Vehicles Manufactured in Two or More Stages*, in a form similar to that proposed in the March 17 notice, the Administration has determined that there is a need to regulate the relationships between manufacturers of multi-stage vehicles to the extent those relationships affect the conformity of the final vehicle to the motor vehicle safety standards, and that the regulation will meet this need with a minimum disruption of established industry practices. Comments received from persons who would occupy the positions of intermediate and final-stage manufacturers were substantially in favor of the proposal.

The definitions by which the regulation establishes the categories of "incomplete vehicle," "completed vehicle," and the three categories of vehicle manufacturers provide a framework within which each may categorize himself and his products. Of necessity, the definitions are

broad and may not clearly define individual situations. The primary distinction between the incomplete vehicle and the completed vehicle is whether the vehicle can perform its intended function without further manufacturing operations other than the addition of readily attachable components or minor finishing operations. The comments indicated there may sometimes be a close question as to whether or not a missing component is "readily attachable." How the question is answered may determine the vehicle's status as a "completed vehicle," or an "incomplete vehicle" and the corresponding status of the manufacturers involved. It has not been found feasible or desirable at this time to regulate the numerous variations in relationships that may develop. In the usual case, it will be possible for the affected manufacturers to reach agreement between themselves as to their respective obligations.

The largest number of comments were directed at the section (§ 568.4) establishing requirements for incomplete vehicle manufacturers. That section provides, first, that an incomplete vehicle manufacturer must furnish a document with the vehicle to contain the information specified by the section. The document may be attached to the vehicle in such a manner that it will not be inadvertently detached, or it may be sent directly to a subsequent manufacturer or a purchaser for purposes other than resale. Several comments requested that the information be placed on a permanent label, although the commenters disagreed as to the amount of information to be so placed. Some chassis-cab manufacturers wanted to retain the chassis-cab label, perhaps with the addition of weight ratings, while several body assemblers wanted to have a label containing all the information specified in the regulation. Apart from the greater amount of information

required, which could make a label inconveniently large, there will often be a need for the final-stage manufacturer to retain copies of the document in his files. A detachable document would meet this much better than a label affixed to the vehicle. Despite complaints from some final-stage manufacturers that detachable documents are too easily lost, there was ample indication at the public meeting that other final-stage manufacturers do not experience such problems. It is the Administration's position that the transmittal of the required documents can be reasonably assured by secure attachment and prominent identification, and that no further regulation of the transmittal process is necessary.

The listing of ratings for the gross vehicle weight and the gross axle weight was not objected to except with respect to multipurpose passenger vehicles. It was suggested that "vehicle capacity weight" or a similar term reflecting the passenger capacity be used. After review of the suggestions, the Administration has concluded that the GVWR-GAWR usage, though perhaps not current in some parts of the industry, is nonetheless the simplest and most accurate means of informing subsequent manufacturers of the vehicle's weight characteristics.

After review of the numerous comments on the subject, the Administration has decided not to require manufacturers to provide information on gross combination weight ratings. The term is not in general use in the country and its application is not clear with respect to certain types of combinations. For this reason, and because there are no existing or proposed standards that refer to gross combination weight ratings, it is not now appropriate to require GCWR information.

The regulation adopts the requirement that the incomplete vehicle manufacturer must list in the document each standard, applicable to the types of vehicles into which the incomplete vehicle may be manufactured, that is in effect at the time of manufacture of the incomplete vehicle. He must provide, with respect to each of these standards, one of the three types of statements proposed in the notice, depending on the degree to which his vehicle complies with each standard. If compliance is complete, and certification of the completed vehicle requires only

that the final-stage vehicle manufacturer not alter certain portions of the vehicle, the incomplete vehicle manufacturer may so state. There is no need for parts to be listed in detail, as suggested by one commenting party. The portions of the vehicle may be referred to by part, system, dimensions, or any other method sufficient to objectively identify them.

At the other extreme, an incomplete vehicle manufacturer may state that the design of the incomplete vehicle does not substantially determine the completed vehicle's conformity with a standard. This would be the case, for example, with respect to Standard No. 205, Glazing Materials, if the incomplete vehicle is a stripped chassis. Some comments stated that it appeared unnecessary to recite such standards if the incomplete vehicle manufacturer has nothing to do with them. It is the Administration's position, however, that such a recitation serves as useful notice to final-stage vehicle manufacturers, many of whom may be less familiar with the standards than the incomplete vehicle manufacturers.

Between these two extremes are the situations in which the work of the incomplete vehicle manufacturer partially determines the conformity of the final vehicle, but in which the input of subsequent manufacturers will necessarily affect such conformity. It may be that the main system components are furnished and installed by the incomplete vehicle manufacturer, as in the case of the recently adopted standard on air brake systems, but that the final-stage vehicle manufacturer must necessarily perform operations that affect the performance of the components, such as placing a body on the chassis, thereby affecting the vehicle's weight distribution and center of gravity. In some cases, as under the lighting standard, the incomplete vehicle manufacturer will supply some components that will be installed by the final-stage manufacturer, with or without additional components. In either case, the ultimate conformity of the vehicle is determined by more than one manufacturer, and the regulation deals with this problem by requiring the incomplete vehicle manufacturer to set forth specific conditions under which the completed vehicle will conform to the standard. It is not intended that the incomplete vehicle manufacturer should indicate



all possible conditions under which a vehicle will or will not conform. He must, however, specify at least one set of conditions under which the completed vehicle will conform. A final-stage manufacturer who wishes to act outside these conditions will be on notice that he should consult further with the incomplete vehicle manufacturer, or accept responsibility for conformity with the standard in question. Since the information that the incomplete vehicle manufacturer is required to gather will be developed in the course of his engineering development program, the requirement that this information be supplied to subsequent manufacturers does not appear unduly burdensome, and the requirement is adopted as proposed.

The obligations of the final-stage manufacturer have also been adopted without change from the notice of March 17. The major objection expressed in the comments was that the final-stage manufacturer was often a small company whose input was small relative to that of the incomplete vehicle manufacturer and that he should not bear the burden of certifying that the vehicle fully conforms to the standards. This objection confuses certification with liability. Although the certifying manufacturer may be approached first in the event of his vehicle's nonconformity, if the nonconforming aspect of the vehicle is a component or system supplied by the incomplete vehicle manufacturer, the final-stage manufacturer may establish that he exercised due care by showing that he observed the conditions stated by the incomplete vehicle manufacturer. To the extent that the final vehicle's conformity is determined by work done by the incomplete vehicle manufacturer, the final manufacturer's burden is thus reduced.

Several comments stated that considerable time may elapse between the date of manufacture of the incomplete vehicle and the date of completion of the final-stage vehicle. The regulation deals with this situation by permitting the final-stage manufacturer to select either date or any date in between as the certification date. Although this aspect of the regulation appears to be generally understood, the question arose at the September 18 meeting as to whether a manufacturer may certify compliance with standards

as they are effective at different dates between initial and final manufacture. This question has been answered in the negative. The regulation requires manufacturers to conform to all the standards in effect on a particular date, between the two limits. The NHTSA may repeal certain requirements while instituting others, and those in effect at a particular time must be viewed, and conformed to, as a system. A manufacturer who wishes to comply with a standard before its effective date may do so, of course, even though he is not required to certify. Where amendments to an existing standard are such that a vehicle complying with the amended standard will not comply with the earlier version, the Administration will ordinarily provide in the standard that a manufacturer may elect to comply with the amendment before its effective date, if such a course is considered acceptable.

A further question raised in the comments concerns the status of a manufacturer who does not have title to the vehicle on which he performs manufacturing operations. The Administration's response, as stated at the September 18 meeting, is that if a manufacturer produces a completed vehicle from the incomplete stage, he is a final-stage manufacturer, regardless of title. Basing responsibility for conformity on title would present too many opportunities for evasion, and the actual assembler is the party most likely to have the technical knowledge necessary for effective exercise of responsibility.

Another question concerns the magnitude of the manufacturing operation that makes the vehicle a completed vehicle and its manufacturer a final-stage manufacturer. By its definition a completed vehicle is one that requires no further manufacturing operations in order to perform its intended function, other than the attachment of readily attachable components and minor finishing operations. If a manufacturer installs a component that is not readily attachable, such as a fifth wheel, then he is a final-stage manufacturer even though his contribution to the overall vehicle may appear small. In any case, however, an incomplete vehicle or intermediate manufacturer may assume legal responsibility for the

vehicle and affix the appropriate label under 567.5(b) or 567.5(c) of the certification regulations.

In the event that a "readily attachable component" is a component regulated by the standards, such as a mirror or a tire, the final-stage manufacturer must assume responsibility and certify the vehicle even though he does not install the particular component. Otherwise, the installers of mirrors and tires would be considered final-stage manufacturers, a status that they would probably find unacceptable and that would tend to make certification less meaningful.

In consideration of the above, Title 49, Code of Federal Regulations, is amended as follows:

A new part 568, *Vehicles Manufactured in Two or More Stages*, is added, reading as set forth below.

Section 571.3 is amended by deleting the definition of "chassis cab."

Sections 571.5(b) and 571.13, and the Ruling Regarding Chassis-cabs appearing at 33 F.R. 29 (January 3, 1968), are revoked.

Issued on April 8, 1971.

Douglas W. Toms  
Acting Administrator

**36 F.R. 7054**  
**April 14, 1971**

## PREAMBLE TO AMENDMENT TO PART 568—VEHICLES MANUFACTURED IN TWO OR MORE STAGES

This notice extends the applicability of the definitions used in the Federal Motor Vehicle Safety Standards to other regulations contained in Chapter V of Title 49, Code of Federal Regulations, and deletes the definitions of "Gross axle weight rating" and "Gross vehicle weight rating" from the regulations governing vehicles manufactured in two or more stages.

49 CFR 571.3(b) contains the definitions used in the Federal Motor Vehicle Safety Standards. Some of the regulations other than standards contain their own definition sections defining terms unique to the regulation, and otherwise incorporating by reference the definitions of Part 571. An example of this is the definition section in the Certification Regulation, 49 CFR 567.3: "All terms that are defined in the Act and the rules and standards issued under its authority are used as defined therein." However, there is no reverse applicability of 49 CFR 571.3(b), which applies only to terms "as used in this part." One result has been that duplicate definitions appear in certain regulations, specifically, the identical definitions of "Gross axle weight rating" and "Gross vehicle weight rating" found in both Part 571 and the regulation on Vehicles Manufactured in Two or More Stages, Part 568. To prevent unnecessary duplication and the possibility of confusion in the future, the Admin-

istration has determined that the definitions used in Part 571 should apply to all regulations in Chapter V, and also that Part 568 should be amended by deleting the definitions of "Gross axle weight rating" and "Gross vehicle weight rating." In consideration of the foregoing 49 CFR 568.3 is amended . . .

*Effective date:* June 1, 1972. Since this amendment is administrative and interpretive in nature and imposes no additional burden upon any person, notice and public procedure thereon is unnecessary and it may be made effective in less than 30 days after publication in the *Federal Register*.

This notice is issued under the authority of section 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407), and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administration 49 CFR 1.51.

Issued on May 9, 1972.

Douglas W. Toms  
Administrator

37 F.R. 10938  
June 1, 1972



**PREAMBLE TO AMENDMENT TO PART 568—  
VEHICLES MANUFACTURED IN TWO OR MORE STAGES**

**(Docket No. 72-27; Notice 2)**

This notice establishes certification and labeling responsibilities for persons who alter "completed vehicles" after their certification as conforming to applicable motor vehicle safety standards. The requirements are based on those proposed in a notice of proposed rulemaking published October 25, 1972 (37 F.R. 22800).

Under the new requirements, a person who alters a completed vehicle, other than by the attachment, substitution, or removal of "readily attachable components", will be required to ascertain conformity to all applicable standards as of any date between the manufacture date of the completed vehicle and the manufacture date of the altered vehicle. That person will be required to affix a label (leaving the certification label in place) that identifies the alterer, the date of alteration, the date as of which conformity is determined, and any changes the alteration produces in either gross weight ratings or vehicle classification. A person who does not alter the vehicle, or who adds, substitutes, or removes only readily attachable components will be required to leave the certification label in place, but will not be required, unless the alteration invalidates the stated weight ratings, to provide an additional label. Distributors who do not alter the vehicle, or who alter it using only readily attachable components and do not invalidate the stated weight ratings will meet the certification requirements by leaving the certification label in place. The requirements will place persons who alter completed vehicles on the same basis as final-stage manufacturers, by allowing the former to choose as the date by which vehicle conformity is determined any date between the date on which the completed vehicle is manufactured and the date on which the vehicle is altered. Under

previously existing statutory and regulatory provisions, alterers of vehicles were required to use only the date of completion of the altered vehicle as the date by which conformity could be determined.

General Motors, Truck Body and Equipment Association, and Stutz Motor Car of America supported the proposal without qualification. Other comments generally approved the proposal with some suggested changes.

Several comments argued that the limiting concept of "readily attachable components", the addition, removal, or substitution of which does not create a requirement to affix a label, should not include "mirrors or tire and rim assemblies", as the language appears in §§ 567.6 and .7, and § 568.8. It was argued that these items directly affect the vehicle's conformity to the standards or the weight ratings, and should therefore not be alterable without, in effect, a recertification by the alterer. It was variously suggested that explicit inclusion of these items as examples of readily attachable components might cause a safety problem, a false certification, or a misleading of persons such as dealers as to their responsibilities under the Act and the standards.

The NHTSA does not accept these arguments. The provisions for alteration of vehicles, like the larger certification scheme of which they are a part, are intended to reflect the realities of manufacture and distribution. It is a fact that the substitution of tires by a dealer takes place in a substantial fraction of all vehicle sales. Moreover, a large proportion of the components that are in fact frequently altered at the dealer level are directly affected by standards: mirrors, tires, rims, lighting accessories, bumper guards and attachments, windshield wipers and washers, hub

caps and wheel nuts, seat belts, and interior components such as air conditioners or radios that come within the head impact area, to name a few. If these items were not included in the concept of readily attachable components, for which an alteration label is not required, it is safe to say that virtually every dealer in the country would be affixing labels to many of the vehicles he sold.

It was not the intent of this agency to create such a manifold expansion of labeling requirements. The altered-vehicle label is designed primarily to reach those cases where a completed vehicle is significantly altered, in a manner, and with components, not provided by the original manufacturer. The substitution or addition of parts such as tires, rims, and mirrors is a routine aspect of typical vehicle distribution systems, and the cost burden of affixing a permanent label to the vehicle has not been found to be justified in that situation. For these reasons the language of the regulation has in these respects been retained as proposed.

The requirement to keep a vehicle in conformity to the standards and the weight ratings applies throughout the chain of distribution regardless of any labeling requirements, and this agency has no intent of downgrading the importance of that requirement. The comments did reveal a justifiable concern of manufacturers for situations where the vehicle might be altered, as by substitution of tires, in a way that its stated weight ratings are no longer valid. Also, there may well be cases where a customer wants a vehicle to have lighter components for its intended purpose, and would accept lowered weight ratings. To deal with these cases, language has been added to sections 567.6 and .7, and 568.8, to require the affixing of an alteration label whenever any type of alteration is made that would invalidate the stated weight ratings.

American Motors and Jeep argued that requiring alterers to certify conformity discriminates against manufacturers' dealers. They pointed out that dealers, who generally alter vehicles before sale, are required to maintain conformity, while aftermarket installers of equipment, because the additions they make are to "used" vehicles, need not. They suggested that

"special add-on accessories" be excepted from the requirements, that a new category of "Special Motorized Equipment" be created to which some of the standards would not apply, that equipment standards be issued to cover aftermarket installers, and that highway safety program standards prohibit the alteration of vehicles such that they would not conform to the standards. These comments are not, in the view of this agency, within the scope of the rulemaking. Requests of this nature should be submitted as petitions for rulemaking, with supporting data, in accordance with the procedures of 49 CFR Part 553.

British Leyland suggested that an exemption to the labeling requirements be made for persons installing accessories which the original vehicle manufacturer makes available, and whose installation he knows will not affect vehicle conformity. The NHTSA expects that most accessories meeting this description will be readily attachable within the sense of the regulation, and no further labeling in these cases will be required. It should be noted that the category of "readily attachable components" cannot be sharply defined, and in any marginal case the NHTSA will accept the reasonable judgment of the parties concerned, especially where the original manufacturer and the alterer are in agreement. In cases where components of this type are not found to be readily attachable, the burden on the alterer to determine that the alteration does not destroy conformity is minimized, leaving him with essentially no more than the attachment of the alterer label.

Certain comments pointed out that while proposed sections 567.7 and 568.8 are not limited in their application to distributors, that limitation had been retained in section 567.6. The comments suggested that, as sections 567.7 and 568.8 applied to dealers, section 567.6 should likewise so apply. The substance of the suggestion has been adopted in the final rule, by modifying § 567.6 to apply to any "person".

The Recreation Vehicle Institute (RVI) suggested that manufacturers of completed vehicles be required to supply a document when requested by a vehicle alterer, similar to that provided final-stage manufacturers, that advises alterers how to achieve or retain conformity. This sug-

gestion has not been adopted. If a vehicle manufacturer wishes to provide information on the alteration of his vehicles, he of course may do so. Once a completed, certified vehicle has been produced, however, the NHTSA does not believe it reasonable to require manufacturers to provide persons who might alter that vehicle with additional certification information. The requirement to provide information concerning incomplete vehicles (Part 568) is founded on the fact that an incomplete vehicle manufacturer has marketed his vehicles with the express intent of having them completed by other persons. This is not the case with completed vehicles.

RVI also suggested that the regulation specifically provide that alterers be allowed to base their conclusions as to conformity on the original certification. The NHTSA does not consider such a provision to be meaningful. The extent to which the alterer's conformity assurance may be based on the original certification depends entirely on what the alterer does to the vehicle, which is a fact peculiarly within his knowledge.

Certain comments suggested that compliance with the requirements be permitted before the

specified effective date. The NHTSA believes this request to be meritorious. Alterers will be able to conform to existing requirements or to those issued by this notice at any time up to the effective date.

In light of the above, amendments are made to 49 CFR Parts 567 and 568 . . . .

*Effective date:* February 1, 1974. However, persons who alter vehicles may at any time before that date conform to the provisions issued in this in lieu of existing provisions of 49 CFR Parts 567 and 568.

Sections 103, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718; 15 U.S.C. 1392, 1401, 1403, 1407; delegation of authority at 38 F.R. 12147.

Issued on June 13, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

**38 F.R. 15961**  
**June 19, 1973**





## PREAMBLE TO AN AMENDMENT TO PART 568—VEHICLES MANUFACTURED IN TWO OR MORE STAGES

(Docket No. 80-04; Notice 1)

**ACTION:** Interpretive amendment, final rule.

**SUMMARY:** This notice amends the certification regulations to modify the certification statement required to be made on alterers' labels. This notice responds to a petition by the National Truck Equipment Association to change the certification statement to show that alterers are only responsible for the compliance of their vehicles with standards that are affected by their alteration. The agency has frequently issued interpretations taking that position and accordingly modifies the certification statement to reflect this interpretation. Since this amendment merely incorporates an existing interpretation, it is being made without notice and opportunity for comment.

**EFFECTIVE DATE:** Since this amendment incorporates an existing interpretation, it is effective immediately upon publication, March 24, 1980. However, since manufacturers and alterers need time to modify their labels in accordance with this change and may have supplies of labels with the old language, the NHTSA will permit the use of either the new or the existing label language.

### FOR FURTHER INFORMATION CONTACT:

Mr. David Fay, Engineering Systems Staff,  
National Highway Traffic Safety  
Administration, 400 Seventh Street, S.W.,  
Washington, D.C. 20590 (202-426-2817).

### SUPPLEMENTARY INFORMATION:

In response to the decision in *Rex Chainbelt v. Brinegar*, 511 F.2d 1215 (7th Cir. 1975), the agency issued several amendments to its certification regulations bringing them into compliance with the court's mandate. The court ordered the agency to establish a certification scheme that would require each manufacturer of a vehicle to be responsible for the standards affected by its manufacturing process. During the amendment of the certification regulation, the agency did not change the label used by vehicle alterers. Vehicle alterers are those businesses or individuals that alter previously certified

vehicles prior to their first sale. The agency concluded that the simplicity of the alterers' label should be retained, and that, as it was then worded, the alterers' label was sufficient to indicate that alterers were only responsible for the compliance of standards that might have been affected by their alteration.

The National Truck Equipment Association (NTEA) first petitioned the agency in December 1978 to amend the alterers' label stating that the language in fact made the alterer responsible for the entire compliance of the vehicle with all standards even though the alteration may not have affected any of those standards by its alteration. To accomplish its goal, the NTEA proposed a complicated alterers' label that would have listed the standards affected by the alteration as well as listing those standards for which the alterer claimed no responsibility. The label would have looked much like the current incomplete- or intermediate-manufacturer's labels.

The agency objected to this proposal, because it would have overly complicated the alterers' label. Alterers frequently are small businesses and the alterations they perform are often minor. Many of these small businesses are aware of their responsibilities and know that their alterations do not affect the compliance of a vehicle with safety standards. However, many of these businesses are not familiar with all of the agency's safety standards. Accordingly, it would have burdened them extensively to have familiarized themselves to the point where they could list all of the standards on their labels indicating which, if any, were affected by their alterations. In light of this problem, the agency denied the NTEA's petition while indicating that the agency would be responsive to the suggestion of an amendment that would achieve their goals without adding complexity to the alterers' label.

On August 16, 1979, the NTEA again petitioned the agency to amend the label. This time, however, the NTEA asked the agency simply to add several words to the alterers' label to indicate that the alterer is responsible only for the standards "affected by the alteration." The NTEA argued that this would accomplish their goal of ensuring that an alterer would not be held responsible for compliance of vehicles with safety standards that are not affected by an alterer's modifications. This notice grants their petition.

The agency has indicated by letter in the past that it considers each manufacturer or alterer only to be responsible for the compliance of the standards that it affects by its manufacture or alteration. Thus, the agency would not hold an alterer responsible for the compliance of the entire vehicle when in actuality the final-stage manufacturer or some other manufacturer in the manufacturing chain might have been responsible for a noncompliance with a standard. The agency can understand, however, how some people might read the existing language of the label more broadly than intended. To avoid any such misunderstandings, the agency is amending Part 567, *Certification*, and Part 568, *Vehicles Manufactured in Two or More Stages*, to incorporate the agency's interpretation of an alterer's responsibilities for compliance with safety standards.

In consideration of the foregoing, Title 49 of the Code of Federal Regulations is amended as follows:

1. Part 567, *Certification*, is amended by changing the first sentence of § 567.7(a) to read:

(a) The statement: "This vehicle was altered by (individual or corporate name) in (month and year in which alterations were completed) and as altered it conforms to all applicable Federal Motor Vehicle Safety Standards affected by the alteration and in effect in (month, year)."

2. Part 568, *Vehicles Manufactured in Two or More Stages*, is amended by revising section 568.8 as follows:

§ 568.8 Requirements for persons who alter certified vehicles.

A person who alters a vehicle that has been previously certified in accordance with § 567.4 or § 567.5, other than by the addition, substitution, or removal of readily attachable components such as mirrors or tire and rim assemblies, or minor finishing operations such as painting, or who alters a vehicle in such a manner that its stated weight ratings are no longer valid, before the first purchase of the vehicle in good faith for purposes

other than resale, shall ascertain that the vehicle as altered conforms to the standards which are affected by the alteration and are in effect on the original date of manufacture of the vehicle, the date of final completion, or a date between those two dates. That person shall certify the vehicle in accordance with § 567.7 of this chapter.

Since this modification of the alterers' label merely incorporates an existing interpretation of the certification regulations, the Administrative Procedure Act (5 U.S.C. 553) permits the NHTSA to make the amendment without notice and opportunity to comment. Further, the change is being made effective immediately since it does not change the certification responsibilities of any manufacturer or alterer.

The agency realizes that alterers preprint their labels, and accordingly, any change in the language on the alterers' label requires some leadtime for manufacturers to obtain new complying labels. Accordingly, the agency will permit the use of either the old or new language on the alterers' label until existing supplies of labels are depleted. This will allow those alterers who wish to change their labels immediately the opportunity to do so while providing for an orderly transition for those alterers that wish to use their existing supply of labels. The agency has reviewed this amendment in accordance with E.O. 12044 and implementing departmental guidelines and concludes that it is not significant within the meaning of the Order. The agency has concluded further that preparation of a regulatory evaluation is not warranted. This amendment permits alterers to exhaust their current label supply and to obtain modified labels with their next order. Further, the new labels will be no more costly than the current ones. Accordingly, there should be minimal costs associated with the implementation of this amendment.

The principal authors of this notice are David Fay of the Engineering Systems Staff and Roger Tilton of the Office of Chief Counsel.

Issued on March 17, 1980.

Joan Claybrook  
Administrator

45 F.R. 18928  
March 24, 1980

## **PART 568—VEHICLES MANUFACTURED IN TWO OR MORE STAGES**

### **(Dockets No. 70-6, 70-8, and 70-15)**

#### **§ 568.1 Purpose and scope.**

The purpose of this part is to prescribe the method by which manufacturers of vehicles manufactured in two or more stages shall ensure conformity of those vehicles with the Federal motor vehicle safety standards ("standards") and other regulations issued under the National Traffic and Motor Vehicle Safety Act.

#### **§ 568.2 Application.**

This part applies to incomplete vehicle manufacturers, intermediate manufacturers, and final-stage manufacturers of vehicles manufactured in two or more stages.

#### **§ 568.3 Definitions.**

"Completed vehicle" means a vehicle that requires no further manufacturing operations to perform its intended function, other than the addition of readily attachable components, such as mirrors or tire and rim assemblies, or minor finishing operations such as painting.

"Final-stage manufacturer" means a person who performs such manufacturing operations on an incomplete vehicle that it becomes a completed vehicle.

"Incomplete vehicle" means an assemblage consisting, as a minimum, of frame and chassis structure, power train, steering system, suspension system, and braking system, to the extent that those systems are to be part of the completed vehicle, that requires further manufacturing operations, other than the addition of readily attachable components, such as mirrors or tire and rim assemblies, or minor finishing operations such as painting, to become a completed vehicle.

"Intermediate manufacturer" means a person, other than the incomplete vehicle manufacturer or the final-stage manufacturer, who performs manufacturing operations on an incomplete vehicle.

"Incomplete vehicle manufacturer" means a person who manufactures an incomplete vehicle by assembling components none of which, taken separately, constitute an incomplete vehicle.

#### **§ 568.4 Requirements for incomplete vehicle manufacturers.**

(a) The incomplete vehicle manufacturer shall furnish with the incomplete vehicle, at or before the time of delivery, a document that contains the following statements, in the order shown, and any other information required by this chapter to be included therein.

(1) Name and mailing address of the incomplete vehicle manufacturer.

(2) Month and year during which the incomplete vehicle manufacturer performed his last manufacturing operation on the incomplete vehicle.

(3) Identification of the incomplete vehicle(s) to which the document applies. The identification may be by serial number, groups of serial numbers, or otherwise, but it must be sufficient to ascertain positively that a document applies to a particular incomplete vehicle after the document has been removed from the vehicle.

(4) Gross vehicle weight rating of the completed vehicle for which the incomplete vehicle is intended.

(5) Gross axle weight rating for each axle of the completed vehicle, listed and identified in order from front to rear.

(6) Listing of the vehicle types as defined in 49 CFR § 571.3 (e.g., truck, MPV, bus, trailer) into which the incomplete vehicle may appropriately be manufactured.

(7) Listing by number of each standard, in effect at the time of manufacture of the incomplete vehicle, that applies to any of the vehicle types listed in subparagraph (6) of this paragraph, followed in each case by one of the following three types of statement, as applicable:

(i) A statement that the vehicle when completed will conform to the standard if no alterations are made in identified components of the incomplete vehicle.

**EXAMPLE:**

"107—This vehicle when completed will conform to Standard 107, Reflecting Surfaces, if no alterations are made in the windshield wiper components or in the reflecting surfaces in the interior of the cab."

(ii) A statement of specific conditions of final manufacture under which the manufacturer specifies that the completed vehicle will conform to the standard.

**EXAMPLE:**

"121—This vehicle when completed will conform to Standard 121, Air Brake Systems, if it does not exceed any of the gross axle weight ratings, if the center of gravity at GVWR is not higher than nine feet above the ground, and if no alterations are made in any brake system component.

(iii) A statement that conformity with the standard is not substantially affected by the design of the incomplete vehicle, and that the incomplete vehicle manufacturer makes no representation as to conformity with the standard.

(b) The document shall be attached to the incomplete vehicle in such a manner that it will not be inadvertently detached, or alternatively, it may be sent directly to a final-stage manufacturer, intermediate manufacturer or purchaser for purposes other than resale to whom the incomplete vehicle is delivered.

#### **§ 568.5 Requirements for intermediate manufacturers.**

(a) Each intermediate manufacturer of an incomplete vehicle shall furnish the document required by § 568.4 in the manner specified in that section. If any of the changes in the vehicle made by the intermediate manufacturer affect the validity of the statements in the document as provided to him he shall furnish an addendum to the document that contains his name and mailing address and an indication of all changes that should be made in the document to reflect changes that he made in the vehicle.

(b) Each intermediate manufacturer shall, in accordance with § 567.5 of this chapter, affix a label to each chassis-cab respecting which he is required by paragraph (a) above to furnish an addendum to the document required by § 568.4.

#### **§ 568.6 Requirements for final-stage manufacturers.**

(a) Each final-stage manufacturer shall complete the vehicle in such a manner that it conforms to the standards in effect on the date of manufacture of the incomplete vehicle, the date of final completion, or a date between those two dates. This requirement shall, however, be superseded by any conflicting provisions of a standard that applies by its terms to vehicles manufactured in two or more stages.

(b) Each final-stage manufacturer shall certify that the entire vehicle conforms to all applicable standards, in accordance with section 567.5 of Title 49 of the Code of Federal Regulations, *Requirements for manufacturers of vehicles manufactured in two or more stages.*

#### **§ 568.7 Requirements for manufacturers who assume legal responsibility for the vehicle.**

(a) If an incomplete vehicle manufacturer assumes legal responsibility for all duties and liabilities imposed on manufacturers by the National Traffic and Motor Vehicle Safety Act (15

U.S.C. 1381-1425) (hereafter referred to as "the Act"), with respect to the vehicle as finally manufactured, the requirements of §§ 568.4, 568.5 and 568.6(b) of this part do not apply to that vehicle. In such a case, the incomplete vehicle manufacturer shall ensure that a label is affixed to the final vehicle in conformity with § 567.5(e) of this chapter.

(b) If an intermediate manufacturer of a vehicle assumes legal responsibility for all duties and liabilities imposed on manufacturers by the Act, with respect to the vehicle as finally manufactured, §§ 568.5 and 568.6(b) of this part do not apply to that vehicle. In such a case, the manufacturer assuming responsibility shall ensure that a label is affixed to the final vehicle in conformity with § 567.5(f) of this chapter. The assumption of responsibility by an intermediate manufacturer does not, however, change the requirements for incomplete vehicle manufacturers in 568.4.

#### **§ 568.8 Requirements for persons who alter certified vehicles.**

A person who alters a vehicle that has been previously certified in accordance with § 567.4 or § 567.5, other than by the addition, substitution, or removal of readily attachable components such as mirrors or tire and rim assemblies, or minor finishing operations such as painting, or who alters the vehicle in such a manner that its stated weight ratings are no longer valid, before the first purchase of the vehicle in good faith for purposes other than resale, shall ascertain that the vehicle as altered conforms to the standards in effect on the original date of manufacture of the vehicle, the date of final completion, or a date between those two dates. That person shall certify that the vehicle conforms to all applicable standards in accordance with § 567.7 of this chapter.

**April 14, 1971  
36 F.R. 7054**



## PREAMBLE TO PART 569—REGROOVED TIRES

(Docket No. 20; Notice No. 4)

The purpose of this amendment is to establish criteria under which regrooved tires may be sold or delivered for introduction into interstate commerce. The regulation allows only tires designed for the regrooving process to be regrooved; specifies dimensional and conditional requirements for the tire after the regrooving process; and sets forth labeling requirements for the tire which is to be regrooved.

Section 204(a) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1424) provides that no person shall sell, offer for sale, or introduce for sale or delivery for introduction into interstate commerce, any tire or motor vehicle equipped with any tire which has been regrooved but gives the Secretary the authority to permit the sale of regrooved tires and motor vehicles equipped with regrooved tires when the regrooved tires are designed and constructed in a manner consistent with the purposes of the Act.

A Notice was published (32 F.R. 11579) affording interested persons an opportunity to present views, information and data to form the basis for permitting the sale and delivery for introduction into interstate commerce of regrooved tires and motor vehicles equipped with regrooved tires.

After considering the comments, data, information received and the state-of-the-art a proposed regulation setting forth criteria to govern the regrooving of tires was published (33 F.R. 8603). All comments received have been considered.

As proposed, it was not clear that the definition of regroovable and regrooved tires would allow the regrooving of retreaded tires. Two comments asked whether the regulation would allow the established practice of regrooving a retreaded motor vehicle tire. The Administrator has determined that regrooving sound retreaded

tires does not affect their level of safety performance. Accordingly, the regulation as issued is clarified so as to allow regrooving of both original tread and retreaded motor vehicle tires. There is presently under consideration a Federal motor vehicle safety standard for retreaded tires. When this standard is established, retreaded tires that are regrooved will have to conform to the retread requirements as well as the regrooved tire regulations.

\*The Notice of Proposed Rule Making appearing in June 12, 1968, issue of the *Federal Register* (33 F.R. 8603) was issued under 23 CFR 256, Parts of the Code of Federal Regulations relating to motor vehicle safety were transferred to Title 49 by Part II of the *Federal Register* of December 25, 1968 (33 F.R. 19700).

Section 256.5(a)(3) as contained in the Notice of Proposed Rule Making would have required that, after the regrooving process, there be a protective covering of tread material at least  $\frac{3}{32}$ -inch thick over the tire cord. Four comments asked that this requirement be deleted. It was argued that this would require the removal of regrooved tires with "many usable miles" remaining on the tires.

The  $\frac{3}{32}$ -inch undertread requirement is directly comparable to the undertread of a new tire. It is considered necessary that there be  $\frac{3}{32}$  of an inch of rubber over the cord material as a protection against road hazard damage. Furthermore, this protection is considered essential in order to prevent moisture entering the ply material and subsequently causing deterioration of the tire fabric and ply adhesion. For these reasons, it is concluded that to allow an undertread of less than  $\frac{3}{32}$  of an inch would not be in the public interest.

One comment argued that a tire would have to be completely cut to determine the thickness of the undertread. Since it is acceptable practice to determine undertread depth by use of an awl and only a very limited degree of expertise is

needed to make this measurement without causing damage to the tire, this argument has been rejected.

Section 256.5(a)(4) as contained in the Notice of Proposed Rule Making would have required that after regrooving, the tire have a minimum of 90 linear inches of tread edges per linear foot of tire circumference. Four comments requested clarification of this requirement as to whether the original molded tread was to be included in the measurements for this requirement. The initial intent of this requirement was to include only the newly cut grooves. However, after considering the fact that residual existent grooves offer tread edges which contribute to the traction of the tire, the regulation as issued is revised to allow that portion of the original tread pattern of a regroovable tire which is at least as deep as the new regroove depth to be included within the calculation of the 90 linear inches of tread edges required in each foot of tire circumference.

Section 256.5(a)(5) as contained in the Notice of Proposed Rule Making would have required that, after regrooving, the groove width be a minimum of  $\frac{3}{16}$ -inch and a maximum of  $\frac{5}{16}$ -inch. Four comments requested clarification whether this requirement applied to the original molded tread pattern as well as the tread pattern created by regrooving. It was not intended that this requirement apply to the original molded tread pattern and the regulation as issued is revised to make this clear.

One comment pointed out that the use of the term "tractionizing" within Section 256.5(b) was too general and that the proper term for cross-cutting the tread without rubber removal is "siping." Accordingly, the regulation as issued is revised to reflect this suggestion.

Section 256.7 as contained in the Notice of Proposed Rule Making specified certain labeling requirements for regroovable and regrooved tires. Four comments contended that the labeling requirements should not be included within the regulation. Two other comments stated that the proposed labeling was too large and requested

smaller size symbols and letters. The Administrator recognizes that several names or brands are used to identify regroovable tires and has therefore determined that concise identification of regroovable tires is needed. For this reason the regulation as issued requires molding on a regroovable tire the word "Regroovable," but permits lettering one half the size proposed in the Notice of Proposed Rule Making. However, with regard to the proposed requirement that each regrooving be indicated on the tire, it was found that such a requirement was not necessary in view of the minimum undertread requirement in the regulation and that proposed requirement has been deleted.

In consideration of the foregoing, Part 369—Regrooved Tire Regulation set forth below is added to Title 49—Transportation, Chapter III—Federal Highway Administration, Department of Transportation, Subchapter A—Motor Vehicle Safety Regulations. [This regulation becomes effective April 1, 1969. (34 F.R. 3687—March 1, 1969.)]

This regulation is issued under authority of Sections 119 and 204 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1407 and 1424) and the delegation from the Secretary of Transportation, Part I of the Regulations of the Office of the Secretary (49 CFR § 1.4(c)).

Issued January 17, 1969.

Lowell K. Bridwell,  
Federal Highway Administrator

34 F.R. 1149  
January 24, 1969

## SECTION

- 369.1 Purpose and Scope
- 369.3 Definitions
- 369.5 Applicability
- 369.7 Requirements
- 369.9 Labeling of Regroovable Tires



## **PREAMBLE TO AMENDMENT TO PART 569—REGROOVED TIRES**

**(Docket No. 20; Notice 5)**

### **Extension of Effective Date**

On January 24, 1969, the Federal Highway Administrator published in the *Federal Register* (34 F.R. 1149) a regulation setting forth the conditions under which regrooved tires would be allowed to be sold, offered for sale, introduced for sale, or delivered for introduction into interstate commerce. As published the regulation had an effective date of February 28, 1969.

Several petitions have been received requesting reconsideration of the regrooved tire regulation. The Administrator finds that the petitions do not raise either substantial arguments that have not been carefully considered in issuing the regulation or matters that would require a change in

the regulation, and, therefore, the petitions are denied.

Several petitioners have requested that the effective date of the regulation be postponed. Upon consideration of these requests, I find that good cause exists for postponing the effective date of the regrooved tire regulation, 49 CFR Part 369, from February 28, 1969, to April 1, 1969.

Issued on February 28, 1969.

John R. Jamieson,  
Federal Highway Administrator

**34 F.R. 3687**  
**March 1, 1969**



**PREAMBLE TO AMENDMENT TO PART 569—REGROOVED TIRES****(Docket 74-19; Notice 1)**

This notice amends regulations applicable to regrooved and regroovable tires in response to an opinion of the United States Court of Appeals in *NAMBO v. Volpe* 484 F.2d 1294 (D.C. Cir., 1973), cert. denied \_\_\_\_\_US\_\_\_\_\_ (1974). The Regrooved Tire regulation was published January 24, 1969 (34 F.R. 1149).

In light of the decision in the case cited, 49 CFR Part 569, "Regrooved Tires," is revised....

*Effective date:* April 30, 1974. This amendment is issued in response to a decision of the United States Court of Appeals, and in accordance therewith imposes restrictions required by

statute. Accordingly, notice and public procedure thereon are unnecessary and good cause is found for an effective date less than 30 days from publication.

(Secs. 119, 204, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1407, 1424; delegation of authority at 49 CFR 1.51.)

Issued on April 24, 1974.

James B. Gregory  
Administrator

**39 F.R. 15038**  
**April 30, 1974**



## PREAMBLE TO AMENDMENT TO PART 569—REGROOVED TIRES

(Docket No. 74-19; Notice 2)

This amendment of the regulation governing the sale and use of regrooved tires implements a provision of the National Traffic and Motor Vehicle Safety Act (the Act) that the lease as well as the sale of certain regrooved tires be permitted. The Act was amended in 1974 to permit lease as well as sale, following a court decision which construed the Act to permit only the sale of regrooved tires.

Effective Date: March 7, 1977.

For Further Information Contact:

Tad Herlihy, Office of Chief Counsel,  
National Highway Traffic Safety Administration,  
Washington, D.C. 20590,  
(202-426-9311)

Supplementary Information: Section 204(a) of the National Traffic and Motor Vehicle Safety Act (the Act) (15 U.S.C. § 1424(a)) governs the sale and use of regrooved tires. Regrooved tires are defined in the Act as tires on which a new tread has been produced by cutting into the tread of a worn tire. As enacted originally, § 204(a) provided:

Sec. 204. (a) No person shall sell, offer for sale, or introduce for sale or deliver for introduction in interstate commerce, any tire or motor vehicle equipped with any tire which has been regrooved, except that the Secretary may by order permit the sale of regrooved tires [designed and constructed in accordance with the Act's intent].

Part 569 of NHTSA regulations was issued (34 FR 1149, January 24, 1969) to implement this provision, and it addressed both the circumstances under which lease and sale of re-

grooved tires would be permissible. A United States Court of Appeals found this aspect of Part 569 impermissibly broad, and held invalid that portion of the regulation which would authorize the introduction in interstate commerce of regrooved tires by means other than by sale. (*National Association of Motor Bus Owners v. Brinegar*, 483 F.2d 1284 (7th Cir 1973)). Subsequently, the agency amended Part 569 to conform to the court's decision (39 FR 15085, April 30, 1974).

Section 204(a) was amended in 1974 so that the Secretary may by order permit the sale, offer for sale, introduction for sale, or delivery for introduction in interstate commerce of regrooved tires that are properly designed and constructed. (Pub. L. 93-492, § 110(c) (October 27, 1974)). The agency hereby amends § 569.1 and 569.7(a) to reflect this statutory change.

In consideration of the foregoing, 49 CFR Part 569, "Regrooved Tires," is amended. . . .

Effective Date Finding: Because this amendment implements a statutory provision and creates no additional requirement for any person, it is found that notice and public procedure thereon are unnecessary and that an immediate effective date is in the public interest.

Sec. 129, Pub. L. 92-563, 80 Stat. 718, 15 U.S.C. 1427; Sec. 110(c), Pub. L. 93-492, 88 Stat. 1484, 15 U.S.C. 1424(c); Delegation of authority at 49 CFR 1.569.

Issued on February 28, 1977.

John W. Snow  
Administrator  
42 F.R. 21612  
April 28, 1977



## PART 569—REGROOVED TIRES

### § 569.1 Purpose and Scope.

This part sets forth the conditions under which regrooved and regroovable tires manufactured or regrooved after the effective date of the regulation may be sold, offered for sale, introduced for sale or delivered for introduction into interstate commerce.

### § 569.3 Definitions.

(a) *Statutory Definitions.* All terms used in this part that are defined in Section 102 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1391) are used as defined in the Act.

(b) *Motor Vehicle Safety Standard Definitions.* Unless otherwise indicated, all terms used in this part that are defined in the Motor Vehicle Safety Standards, Part 371, of this subchapter (hereinafter "The Standards") are used as defined therein without regard to the applicability of a standard in which a definition is contained.

(c) "Regroovable tire" means a tire, either original tread or retread, designed and constructed with sufficient tread material to permit renewal of the tread pattern or the generation of a new tread pattern in a manner which conforms to this part.

(d) "Regrooved tire" means a tire, either original tread or retread, on which the tread pattern has been renewed or a new tread has been produced by cutting into the tread of a worn tire to a depth equal to or deeper than the molded original groove depth.

### § 569.5 Applicability.

(a) *General.* Except as provided in paragraph (b) of this section, this part applies to all motor vehicle regrooved or regroovable tires manufactured or regrooved after the effective date of the regulation.

(b) *Export.* This part does not apply to regrooved or regroovable tires intended solely for export and so labeled or tagged.

### § 569.7 Requirements.

(a) *Regrooved tires.*

(1) Except insofar as permitted by paragraph (a)(2) of this section, no person shall sell, offer for sale, or introduce or deliver for introduction into interstate commerce regrooved tires produced by removing rubber from the surface of a worn tire tread to generate a new tread pattern. Any person who regrooves tires and leases them to owners or operators of motor vehicles and any person who regrooves his own tires for use on motor vehicle is considered to be a person delivering for introduction into interstate commerce within the meaning of this part.

(2) A regrooved tire may be sold, offered for sale, or introduced for sale or delivered for introduction into interstate commerce only if it conforms to each of the following requirements:

(i) The tire being regrooved shall be a regroovable tire;

(ii) After regrooving, cord material below the grooves shall have a protective covering of tread material at least  $\frac{3}{32}$ -inch thick.

(iii) After regrooving, the new grooves generated into the tread material and any residual original molded tread groove which is at or below the new regrooved groove depth shall have a minimum of 90 linear inches of tread edges per linear foot of the circumference;

(iv) After regrooving, the new groove width generated into the tread material shall

be a minimum of  $\frac{3}{16}$ -inch and a maximum of  $\frac{5}{16}$ -inch.

(v) After regrooving, all new grooves cut into the tread shall provide unobstructed fluid escape passages; and

(vi) After regrooving, the tire shall not contain any of the following defects, as determined by a visual examination of the tire either mounted on the rim, or dismounted, whichever is applicable:

(A) Cracking which extends to the fabric,

(B) Groove cracks or wear extending to the fabric, or

(c) Evidence of ply, tread, or sidewall separation.

(vi) If the tire is siped by cutting the tread surface without removing rubber, the tire cord material shall not be damaged as a result of the siping process, and no sipe shall be deeper than the original or retread groove depth.

(b) *Siped regroovable tires.* No person shall sell, offer for sale, or introduce for sale or deliver for introduction into interstate commerce a regroovable tire that has been siped by cutting the tread surface without removing rubber if the tire cord material is damaged as a result of the siping process, or if the tire is siped deeper than the original or retread groove depth.

#### **§ 569.9 Labeling of Regroovable Tires.**

(a) *Regroovable Tires.* After August 30, 1969, each tire designed and constructed for regrooving shall be labeled on both sidewalls with the word "Regroovable" molded on or into the tire in raised or recessed letters .025 to .040 inches. The word "Regroovable" shall be in letters 0.38 to 0.50 inches in height and not less than 4 inches and not more than 6 inches in length. The lettering shall be located in the sidewall of the tire between the maximum section width and the bead in an area which will not be obstructed by the rim flange.

34 F.R. 1150  
January 24, 1969



**PREAMBLE TO PART 570—VEHICLE IN USE INSPECTION STANDARDS****(Docket No. 73-9; Notice 2)**

This notice adds Part 570, *Vehicle In Use Inspection Standards* to Chapter V, Title 49, Code of Federal Regulations.

Part 570 does not in itself impose requirements on any person. It is intended to be implemented by the States through the highway safety program standards issued under the Highway Safety Act (23 U.S.C. 402) with respect to inspection of motor vehicles with a gross vehicle weight rating of 10,000 pounds or less, except motorcycles and trailers. General provisions regarding vehicle inspection are set forth in NHTSA Highway Safety Program Manual Vol. 1 *Periodic Motor Vehicle Inspection*. Standards and procedures are adopted for hydraulic service brake systems, steering and suspension systems, tire and wheel assemblies.

Interested persons have been afforded an opportunity to participate in the making of these amendments by a notice of proposed rulemaking published in the *Federal Register* on April 2, 1973 (38 F.R. 8451), and due consideration has been given to all comments received in response to the notice, insofar as they relate to matters within the scope of the notice. Except for editorial changes, and except as specifically discussed herein, these amendments and the reasons therefore are the same as those contained in the notice.

*Policy considerations.* A total of 120 comments were received in response to the notice. These comments were submitted by State motor vehicle agencies, national safety organizations, motor vehicle associations, vehicle and equipment manufacturers, antique car clubs and owners, public interest groups, and individual citizens. The commenters were predominantly in favor of periodic motor vehicle inspection (PMVI) and the establishment of uniform motor vehicle in use safety standards throughout the United States.

As the NHTSA stated in the prior notice, cost-benefit factors were the primary policy consideration in developing the inspection standards and procedures. The primary concern of the States was the socioeconomic impact on the motoring public as well as the impact on the State itself. The general consensus was that the proposed inspection requirements would require a significant increase in facilities, operating personnel, and equipment. Though cost effectiveness was a predominant concern the States nevertheless felt that inspections should include vehicles over 10,000 pounds gross vehicle weight and be extended to include other vehicle systems. Several States expressed concern for the cost of implementing the proposed standards, estimating it at from \$10 to \$14 per car. Even though these States favored PMVI and now have PMVI or random inspection they felt that implementation costs would have a decided economic impact.

NHTSA has responded to these comments allowing an optional road test as a check of service brake system performance, adopting neither of the proposed parking brake procedures, and simplifying test procedures where possible so that tests may be conducted with a minimum added expenditure for equipment, personnel, and facilities. These matters will be discussed subsequently.

The establishment of the proposed standards as "minimum requirements" was questioned by several States as leading to a "watering down" of current requirements in those States which currently meet or exceed them. The NHTSA repeats its intent that the standards are not intended to supplant State standards that establish a higher performance, or to discourage them from establishing or maintaining standards for other vehicle systems not covered by NHTSA.

A number of comments were received from antique car clubs and individual owners who believe that antique, special interest, and vintage cars should be exempt from the proposed standards. These comments should be directed to the States. Each State has its own definitions and registration requirements for vehicles of this nature, and the NHTSA intends the States to implement Part 570 to the extent that it is compatible with its current requirements for these special vehicles.

Several respondents commented that the proposed standard should be expanded to include lighting, glazing, exhaust, wipers, horns, controls, and instrumentation systems. The consensus was that the cost-benefit ratio would materially increase if these systems were included in the proposed standard since inspection of these systems does not require time-consuming procedures or special tools, and corrective measures are less costly to the owner. Some considered it contradictory that safety systems covered by the Federal standards must meet safety performance requirements at the time of manufacture and not during the service life of the vehicle. As the NHTSA stated in the prior notice, the initial Federal effort is intended to cover those vehicles and vehicle systems whose maintenance in good order has proven critical to the prevention of traffic accidents. Requirements for motorcycles and trailers, and for less critical systems, are under study, and the NHTSA intends to take such rulemaking action in the future as may be appropriate to cover them.

*Applicability.* A frequent comment was that the standards and procedures should be extended to cover vehicles whose GVWR exceeds 10,000 pounds. Because braking and steering and suspension systems on these vehicles differ materially from those on lighter vehicles, different criteria must be established and the proposed standards simply cannot be extended to cover them. The NHTSA, however, is developing appropriate inspection standards and procedures for heavy vehicles and will propose them in a notice to be issued by mid-October 1973.

*Brake systems.* Several comments were received questioning the procedure for determining operability of the brake failure indicator lamp.

In some vehicles the parking brake indicator and service brake system failure indicator use the lamp and the methods of simulating failure vary.

It is realized that the procedure specified by the standard is general in nature and cannot cover all possible systems. In those vehicles where a lamp test cannot be executed in the normal manner the test will have to be conducted in accordance with the manufacturer's specifications, as determined by the vehicle inspector.

The brake system integrity test for fluid leakage has been modified on the basis of comments that it was not stringent enough. It was proposed that decrease in pedal height under 125 pounds force for 10 seconds should not exceed one-quarter of an inch. The requirement adopted is that there be no perceptible decrease in pedal height when 125 pounds of force is applied to the brake pedal and held for 30 seconds.

The brake pedal reserve test has been adopted substantially as proposed, and specifies that the engine be operating at the time of the test. Vehicles with full power (central hydraulic) brake systems are exempted from this test as the service brake performance test will be adequate to test such systems.

The service brake performance test offers the option of a road test, or testing upon a drive-on platform or roller-type brake analyzer (originally proposed under the title "Brake equalization"). States that conduct random inspections, and those that designate agents to perform vehicle inspections, objected strenuously to a test requiring the use of roller-type or drive-on test equipment. Consequently, an alternate test has been adopted which requires vehicles to stop from 20 mph in 25 feet or less without leaving a 12-foot wide lane. It is intended that this option be used only by States where it is current practice, and it is hoped that such States where practicable will change to the drive-on brake platform or roller-type brake analyzer tests. The terms "crimped" and "damaged" have been eliminated as causes for rejection of brake hoses, as redundant. If brake discs and drums are not embossed with safety tolerances, the requirement has been added that they be within the manufacturer's recommended specifications.

The primary concern regarding power assist units was that the brake pedal will rise instead of falling on a full-power brake system when tested according to the procedure proposed. In view of the basic design of a full-power brake system this test would not be a proper check of system operation, and will not be required. As noted earlier, the service brake performance test will be used as the primary test of the full-power brake performance. To accord with the terminology of Standard No. 105a this section has been renamed "Brake power units."

The parking brake system inspection proposal proved controversial. The NHTSA proposed two objective, alternate tests, the first requiring the system to hold the vehicle on a 17 percent grade, and the second requiring the system to stop the vehicle from 20 mph within 54 feet. The first was objected to principally on the ground that each inspection station would have to construct a 17 percent grade. This would present problems for both in-line and bay type inspection facilities. The stopping distance test, on the other hand, was opposed as a dynamic test more appropriate for service brake evaluation. In view of these objections, the parking brake inspection requirements were not adopted.

*Steering and suspension systems.* The primary objections to the steering wheel test for free play concerned the test condition with the engine off on vehicles equipped with power steering, the linear measure of system free play (instead of angular measure to eliminate the variance due to steering wheel diameters), and the 2-inch free play limit for rack and pinion type steering gear.

The tolerance proposed and adopted for steering wheel free play is 2 inches for wheels of 16 inches diameter or less, since few passenger car steering wheels exceed this diameter. However, a table of free play values for older vehicles with steering wheels over 16 inches in diameter has been added to the standard. The requirement to have the engine running is being added to the procedure since steering wheel play can be greater with the engine off than with the engine on for cars equipped with power steering. Steering play on cars equipped with rack and pinion type steering will require further review

to determine if the 2-inch tolerance should be changed.

Some comments argued that wheel alignment tolerances were considered too restrictive in the toe-in condition, and too lenient in toe-out. Some comments recommended visual inspection of tire wear as criteria to determine alignment. However, visual inspection of tire wear is not considered a valid method of checking alignment, and therefore was not adopted as an alternate method. No consensus of alternative values could be derived from the comments, and the proposed tolerances of 30 feet per mile have been adopted.

The requirements for the condition of shock absorber mountings, shackles, and U-bolts have been changed from "tight" to "securely attached" as a clarification.

*Tire and wheel assembly standards and inspection procedures.* Several comments were received suggesting that rim deformation in excess of one-sixteenth of an inch be permitted, as the proposed tolerance would result in rejection of otherwise safe vehicles. The primary concern of the requirement is air retention, and since vehicles with wheel deformation of one-sixteenth of an inch apparently perform satisfactorily in service without hazard the deformation tolerance has been increased to three thirty-seconds of an inch runout for both lateral and radial bead seat areas.

*Effectivity.* Several commenters questioned the proposed effective date, 30 days after publication of the final rule. The NHTSA considers it in the public interest that minimum Federal standards for motor vehicles in use become effective without further delay. Implementation by the States will take place within the context of their highway safety programs, and the plans approved by the NHTSA under the Highway Safety Act, 23 U.S.C. 402.

In consideration of the foregoing, Title 49, Code of Federal Regulations is amended by adding Part 570 to read as set forth below.

*Effective date.* Sept. 28, 1973. Since this part does not in itself impose requirements on any person it is determined for good cause shown that an effective date earlier than 180 days after

**Effective: September 28, 1973**

publication of the final rule is in the public interest.

Issued on: Aug. 29, 1973.

(Sec. 103, 108, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1397, 1407; delegation of authority at 49 CFR 1.51.)

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James B. Gregory  
Administrator

**38 F.R. 23949**  
**September 5, 1973**

# PREAMBLE TO AMENDMENT TO PART 570—VEHICLE IN USE INSPECTION STANDARDS

(Docket No. 73-9; Notice 4)

This notice responds to petitions for reconsideration of Vehicle In Use Inspection Standards and amends the standards in certain minor respects.

The Vehicle In Use Inspection Standards, 49 CFR Part 570, were published on September 5, 1973 (38 F.R. 23919). Thereafter, pursuant to 49 CFR 553.35, petitions for reconsideration of the rule were received from Motor Vehicle Manufacturers Association (MVMA), Rubber Manufacturers Association (RMA), Firestone Tire and Rubber Company (Firestone), General Motors Corporation (GM), and Ford Motor Company (Ford). This notice discusses the major issues raised by these petitions and their resolution.

Ford called NHTSA's attention to an oversight in the inspection procedure for brake pedal reserve in § 570.5. Notice 1 proposed a force of 25 pounds for power-assisted brake systems and 50 pounds for all other brake systems. These forces were inadvertently omitted in Notice 2, and, accordingly, § 570.5 is amended to include them.

GM and the MVMA requested that the period during which a 125-pound force is applied to the brake pedal be reduced from 30 seconds to 10 seconds. Since the purpose of the standard is to check for brake fluid leakage, and this can be determined during a 10-second period, the petition is granted.

Ford requested that § 570.5(e) "Service Brake System—Brake Hoses and Assemblies" be amended to allow "rub rings," installed as hose protection devices, to come in contact with a vehicle body or chassis. The purpose of these devices as stated by Ford is to prevent damage to hose or tubing and thus promote motor vehicle safety. NHTSA, after investigation, has determined that rub rings or similar protective devices

do provide brake hose and tube protection, and § 570.5(e) is amended accordingly. However, should the rub rings wear or abrade to the extent that the hoses or tubing contact the chassis or vehicle body, the vehicle should be rejected.

GM requested that the procedure for inspecting steering wheel lash in § 570.7(a) be revised so as to yield more consistent results between examiners and inspection stations. It was GM's contention that the term "perceptible movement" was too subjective, and that the many intangible factors involved in the inspection procedure would not provide an objective and repeatable test. The procedure recommended by GM would involve applying a specified force in one direction to remove lash and provide a small amount of torsional wind up, releasing the wheel, and applying another force in the same direction to establish a reference point. The process would be repeated in the opposite direction to establish a second reference point. The distance between the two points would then be measured.

Although the inspection procedure proposed by GM may provide a more objective test of steering system play, it is the belief of NHTSA that additional time will be required to evaluate their proposal under field test conditions with various steering wheel diameters. Therefore, action on this request will be held in abeyance pending completion of such a study.

Ford and GM requested a change in the toe-in alignment specifications listed in § 570.7(d), stating that several vehicles currently in service would exceed the 30 ft/mi toe-in limits established in the standard. For example, 1974 Ford Service Specifications—Tire Scrub (based on a 29-in diameter tire/wheel assembly) shows a maximum toe-in for certain Ford vehicles of 82.5 ft/mi based on 11.78 ft/mi tire scrub for each  $\frac{1}{16}$ -in toe-in. In its submission to Docket

No. 73-9, Ford recommended that the toe-in requirement be no more stringent than 1.5 times the manufacturer's maximum toe-in specification. In consideration of the wide variance between manufacturers' toe-in specification, the limits of  $\pm 30$  ft/mi currently used in some State inspections appear to be reasonable for some vehicles and unduly restrictive for others. § 570.7(d), therefore, is amended to make the requirement more equitable.

The NHTSA, however, believes that wheel alignment designs with high toe-in values are not in the best interests of the consumer, as both tire wear and fuel economy are affected adversely with high toe-in/toe-out conditions. For this reason, industry action to alleviate this problem will be carefully observed.

RMA and Firestone petitioned for a clarification of the language of § 570.9(b) concerning tire type. It was suggested that "tire size designation" would be more explicit than tire "nominal size." NHTSA believes the suggested phrase more clearly defines the intent of the standard, and the petition is granted.

The petitioners additionally contend that the language in § 570.9(b)(i), notably "major mismatch" and "major deviation," could lead the inspector to reject tires that do not have exactly the tire size designation(s) specified by the vehicle manufacturer. NHTSA disagrees with this interpretation of the inspection procedure. The language allows the inspector to pass any vehicle equipped with tires that meet the published vehicle-manufacturer or RMA criteria for tire replacement. Tires with special characteristics such as extra wide sport type tires, "slicks", and extra low profile tires would not meet the criteria for replacement tires. The petition is, therefore, denied.

Both RMA and Firestone requested a change in the language of § 570.9(d)(i) which specified the use of an awl to probe cuts on tires as a method for evaluating the extent of tire damage. Firestone strongly recommended the use of a

"blunt instrument" rather than an awl to prevent further damage to the tire. The NHTSA feels that this is a constructive request, and the petition is granted.

RMA and GM requested a change in § 570.10(b) regarding the limits and the procedure for checking lateral and radial runout of wheel assemblies. GM contended, based on a survey of 500 vehicles of its employees, that the  $\frac{3}{32}$  in runout specification is too restrictive and that owners of vehicle with runouts of 0.050 to 0.225 in did not experience loss of air pressure or any detectable vibration. GM recommended a runout specification of at least  $\frac{1}{8}$  in. After reviewing the GM data, NHTSA has determined that the request is reasonable and, therefore, the petition is granted. Accordingly § 570.10(b) is amended to reflect the  $\frac{1}{8}$ -in radial and lateral runout limits.

Finally there were several requests to include provisions for non-matching spare or emergency tires, prohibition of radial-ply tire mix with any other tire type on the same vehicle, and recommendations for inclusion of minimum criteria for accuracy of test devices. Since these topics were not included in prior rulemaking notices, these recommendations will be considered for future action.

In consideration of the foregoing, 49 CFR Part 570, Vehicle In Use Inspection Standards, is amended. . . .

Effective date: May 9, 1974.

(Sec. 103, 108, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1397, 1401; delegation of authority at 49 CFR 1.51.)

Issued on April 3, 1974.

James B. Gregory  
Administrator

39 F.R. 12867  
April 9, 1974

## PREAMBLE TO AMENDMENT TO PART 570—VEHICLE IN USE INSPECTION STANDARDS

(Docket No. 73-9; Notice 7)

This notice amends Part 570, Vehicle in Use Inspection Standards, Chapter V, Title 49, Code of Federal Regulations by adding inspection standards and procedures for brake systems, steering and suspension systems, and tire and wheel assemblies for all motor vehicles with a gross vehicle weight rating that exceeds 10,000 pounds.

Interested persons have been afforded an opportunity to participate in the making of these amendments by a notice of proposed rulemaking published in the *Federal Register* on October 11, 1973 (38 CFR 28077), and due consideration has been given to all comments received in response to the notice.

A total of twenty-nine comments were received in response to the notice. These comments were submitted by State motor vehicle agencies, motor vehicle manufacturers, tire and brake equipment manufacturers, the Motor Vehicle Manufacturers Association, and the American Association of Motor Vehicle Administrators. The comments were predominantly in favor of periodic motor vehicle inspection, although problem areas in the inspection of vehicles over 10,000 pounds were presented.

An exemption for mobile homes from the proposed rulemaking action was requested by the Mobile Home Manufacturers Association who contended that since mobile homes are moved about 2.3 times during their life span and are constructed for use primarily as residential dwellings and not as motor vehicles for use on the highways, they should be excluded from the proposed regulation. The Recreational Vehicle Institute, however, suggested that different inspection frequencies for motor homes and recreational trailers as related to other commercial

vehicles would be appropriate. The NHTSA concludes that motor homes and recreational vehicles should not be excluded from periodic inspection, but the period between inspections should be determined by the States based on the requirements that may be unique to their particular jurisdiction.

The Professional Drivers Council suggested that inspection intervals should be based upon vehicle use, in lieu of calendar periods, in order to ensure adequate inspection frequency. They suggested 20,000 miles between inspections as a feasible criterion. Although NHTSA agrees that distance as well as time is an important criterion in determining inspection intervals, it has concluded that each State should determine inspection intervals based upon the driving conditions experienced by motor vehicles within its jurisdiction.

Many comments questioned the time required to check the brake system integrity of a hydraulic brake system, and suggested that the time of application be changed to 10 seconds. Since the purpose of this check is to determine whether there is any leakage of hydraulic fluid during operational conditions, and the consensus of comments indicates that this can be accomplished equally well during a 10-second test, the suggestion is adopted and § 570.55 will be worded accordingly.

Ford and MVMA requested that a brake pedal force be included in the brake pedal reserve check, and that a note be added regarding the effect of a vacuum booster on test validity. The suggestion to include a pedal force is considered valid, and § 570.55(c) will include a brake pedal force of 50 lbs. NHTSA concludes, however, that the terminology "full power (central hydraulic) brake system and brake systems de-

signed to operate with greater than 80% pedal travel" properly describes brake systems, and that a note to include a reference to a vacuum booster is not required.

Several comments suggested exemption of protective rings from consideration as part of a hose or tubing assembly. These have been found to have merit, and § 570.55(d) exempts protective rings or devices from consideration in regard to contact with vehicle body or chassis.

Several comments were received requesting clarification of the requirements of truck and trailer vacuum system checks in § 570.56. In response, this section has been rewritten to require the capability of at least one service brake application at a 50-pound brake pedal pressure after the engine has been turned off to verify operation of vacuum system. The inspection procedure has been revised to cover trailers equipped either with brake chamber rods or with enclosed chambers and hydraulic systems.

A large number of comments were received regarding § 570.57 (Air Brake System Integrity). This section has been altered from the proposal to change air pressure limits, time of test, and engine idling speed, thus clarifying the terminology and allowing test limits to more properly reflect operating conditions.

Comments on § 570.58 were submitted by Wagner and MVMA regarding wire gage and current capacity, sensing of surge force during test, and comparison of GVWR to capacity and number of brakes. The NHTSA concludes that § 570.58 properly covers these areas and that no change from the proposal is necessary.

Several comments were received on § 570.59, service brake system testing, regarding the feasibility of roller-type or drive-on platform testers for large vehicles, and questioning the 25-percent allowable imbalance of braking forces between wheels on same axle. Since the test procedure is designed to locate a serious imbalance condition, the NHTSA concludes that the recommended 25 percent or less imbalance requirement will provide the desired safety benefit. However, if future test data show that upgrading the requirement to a 20 percent maximum imbalance is warranted, NHTSA shall propose that the requirement be made more stringent.

The feasibility of inspection of brake linings and other internal components as compared to road testing was questioned by several commentators. While the optimum inspection of brake assemblies would require the removal of the wheels, the NHTSA has found that the removal of a wheel in most vehicles in the 10,000 pound and over GVWR class requires special skills and training, as well as replacement of oil seals, for reassembly. Therefore, this inspection procedure is limited to wheels which are equipped with inspection ports or access openings, thereby avoiding the need to remove the wheels.

Several comments were received regarding stopping distances of 35 feet versus 40 feet for combination vehicles and truck tractors for the road test at 20 mph. The present Bureau of Motor Carrier Safety standard is 40 feet, and NHTSA has decided that this value is adequate for safety purposes. The standard is worded accordingly.

In response to the comments received, the inspection procedure for checking front wheel steering linkage free play in § 570.60 is changed from the proposal to provide for proper testing of vehicles with and without power steering. Alignment limits are increased to 1.5 times the value listed in the vehicle manufacturer's service specification for alignment setting to allow for variations in vehicles due to age and differences in test equipment readouts.

Commentors on § 570.61, suspension system, requested clarification of the proposed requirement that "Springs shall not be broken or extended by spacers." This sentence is reworded to read "Springs shall not be broken and coil springs shall not be extended by spacers."

Several comments were received regarding tread depth requirements in § 570.62, and the number of places around the circumference of a tire where measurements should be taken. The standard is worded so as to measure tread depth in two adjacent major grooves at three locations spaced approximately 120 degrees apart for tires without tread wear indicators. A clarification was requested of the use of the terms "construction", "profile", and "nominal size" in describing tires and of the  $\frac{3}{8}$  in. limit on overall diameter.



In response, this section is worded to read "Vehicles should be equipped with tires on the same axle that are matched in construction and size designation, and dual tires shall be matched for overall diameter within one-half inch."

In consideration of the foregoing, 49 CFR Part 570, Vehicle In Use Inspection Standards, is amended by denoting the existing sections 570.1 through 570.10 as Subpart A, *Vehicles with GVWR of 10,000 Pounds or Less*, and by adding a new Subpart B, *Vehicles with GVWR of More Than 10,000 Pounds* . . . .

Effective date: August 14, 1974. Since this part consists of standards for State inspection programs and does not directly impose require-

ments on any person, it is determined for good cause shown that an effective date earlier than 180 days after publication of the final rule is in the public interest.

(Secs. 103, 108, 119, Public Law 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1397, 1407; delegation of authority at 49 CFR 1.51.)

Issued on July 9, 1974.

James B. Gregory  
Administrator

**39 F.R. 26026**  
**July 16, 1974**



## **PREAMBLE TO AMENDMENT TO PART 570—VEHICLE IN USE INSPECTION STANDARDS**

**(Docket No. 73-9; Notice 8)**

This notice amends Part 570, Subpart B, Vehicle in Use Inspection Standards, Motor Vehicles with a GVWR of More Than 10,000 Pounds, in Title 49, Code of Federal Regulations, by making it clear that the standard does not apply to mobile structure trailers.

On July 16, 1974, NHTSA promulgated Subpart B to Part 570 which consisted of vehicle in use standards for motor vehicles with a GVWR of more than 10,000 pounds (39 F.R. 26026). In response to the notice of proposed rulemaking which preceded it (38 F.R. 28077), the Mobile Homes Manufacturers Association (MHMA) commented that their data indicated that the average mobile home is moved once every 40 months or about 2.3 times during its life, that it spends less than 12 hours on the public roads during its 18 to 20 year life span, and that it spends 0.055% of its useful life on the highway. NHTSA concluded, therefore, that mobile structure trailers should not fall within the ambit of the standard at this time.

By letter of July 19, 1974, the Mobile Homes Manufacturers Association (MHMA) pointed out that while motor homes and recreational vehicles were specifically made subject to the standard, no reference was made to mobile structure trailers except to reiterate MHMA's comments to the proposed rule. To clarify this ambiguity and the agency's intent, § 510.53 is hereby amended . . . .

Effective date: August 13, 1974. Since this amendment does not impose requirements on any person and is meant to clarify a preceding rule, it is found for good cause shown that an immediate effective date is in the public interest.

(Sees. 103, 108, 119, Public Law 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1397, 1407; delegation of authority at 49 CFR 1.51.)

Issued on August 7, 1974.

James B. Gregory  
Administrator

**39 F.R. 28980  
August 13, 1974**



## PREAMBLE TO AMENDMENT TO PART 570—VEHICLE IN USE INSPECTION STANDARDS

(Docket No. 73-9; Notice 9)

This notice responds to petitions for reconsideration of Vehicle in Use Inspection Standards for vehicles with a GVWR of more than 10,000 pounds.

NHTSA issued on July 16, 1974, the vehicle in use inspection standards to be implemented by the States for vehicles with a GVWR of more than 10,000 pounds (39 F.R. 26026). Subsequently, petitions for reconsideration were received from Ford Motor Company (Ford), General Motors Corporation (GM), the Motor Vehicle Manufacturers Association (MVMA), the Midland-Ross Corporation (Midland) and the Bendix-Westinghouse Corporation (Bendix). The NHTSA response to matters raised in these petitions will be given by subject grouping.

*Brake Pedal Reserve*

Ford has called the attention of NHTSA to a typographical error in the formula shown in subparagraph 570.55(c)(1) and used for computing the brake pedal reserve. Instead of the relationship  $\frac{A-B}{A} \times 100$ , the formula should be shown as  $\frac{A-B}{A} \times 100$ . The standard will be corrected accordingly.

Midland petitioned to revise the wording in paragraph 570.55(c) to require vehicles with modified vehicle brake systems, such as with an additional tag axle utilizing existing hydraulic brake fluid capacity, to meet the requirements of the brake pedal reserve test. Currently, this test is waived for all vehicles with brake systems designed to operate with greater than 80 percent pedal travel, whether through original design or modification. Since it was NHTSA's original intent that the waiver apply only when the original manufacturer's design criteria established pedal travel at greater than 80%, this

petition is granted, and the second sentence of paragraph 570.55(c) is amended to read:

"The brake pedal reserve test is not required for vehicles with brake systems designed by the original vehicle manufacturer to operate with greater than 80 percent pedal travel."

*Air Brake System Integrity*

Ford petitioned to expand Table 1 (Air brake system pressure build-up time) to include vehicles equipped with reservoirs of smaller capacities and varying designs, such as vehicles that use wedge brakes and the newly-developed compact brake chambers. Further, GM recommended that the values in Table 1 representing total reservoir volume be separated by 1 cubic inch to avoid column overlapping and resultant errors in utilizing the tables. The NHTSA concurs with these suggestions, and Table 1 is expanded to include requirements for 9-inch and 12-inch brake chambers and the columnar reservoir volume range values are separated by 1 cubic inch.

GM questioned the chamber volumes used in Table 1 as "not reflecting a substantial portion of industry usage." This question was also discussed by Midland-Ross, which submitted chamber area volume figures ranging from 16 inches to 36 inches. Likewise, Bendix submitted volume figures which were consistent with those submitted by Midland-Ross. The Midland-Ross petition also suggested that to be fair to all manufacturers, the reservoir build-up times as shown in Table 1 should be increased by a factor of 20 percent to compensate for normal compressor wear and deterioration. NHTSA concurs in these views, and Table 1 is amended to utilize composite volume figures deemed representative of industry practice for the representative brake chambers as shown in Table 2 below:

TABLE 2.—Chamber Volumes for Representative Brake Chambers

Chamber Size (Inches)	Volume (Cubic Inches)
9	18
12	25
16	43
20	51
24	66
30	88
36	125

Further, the following formula is established to compute the time in seconds:

$$\text{Time (Seconds)} = \frac{\text{Actual Reservoir Capacity} \times 25 \times 1.20}{\text{Required Reservoir Capacity}}$$

Bendix petitioned for the use of only a single maximum time figure of 30 seconds for an increase in the air pressure from 85 to 100 psi in the reservoirs with the engine running at the vehicle manufacturer's maximum recommended number of revolutions per minute. Although this requirement would simplify Table 1, it would not cover all of the combinations of brake chambers and reservoirs used in the trucking industry. NHTSA therefore concludes that Table 1 is necessary, and Bendix's petition is accordingly denied.

MVMA in its petition pointed out the problems involved in requiring the inspector to identify the number and size of brake chambers and the number and size of the reservoirs before he could use Table 1. In the judgment of this agency, it is not an unreasonable burden on the truck owner or operator to provide this readily-available information to an inspector at the time of inspection. MVMA's petition is therefore denied.

Midland petitioned to revise paragraph 570.57 (a)(1) to assure conformity of test conditions between FMVSS 121 and the air brake system pressure build-up test of Table 1. This request is considered valid, and paragraph 570.57(a)(1) is revised to read: "The air brake system compressor shall increase the air pressure in the

truck or truck tractor reservoir(s) from 85 to 100 psi in not more than the time specified in Table 1, with the engine running at the vehicle manufacturer's maximum recommended number of revolutions per minute."

Ford petitioned for the elimination of 570.61(b), Shock absorber condition, contending that shock absorbers do not affect the safety of all large motor vehicles, are offered only to improve operator comfort and have only a minimal effect on vehicle stability. Although the relationship between comfort and control may be hard to define, NHTSA concludes that the operator's response to varying loads, weather conditions, and road conditions is affected by the condition of the shock absorbers on the motor vehicle being driven. Further, results of two test programs carried out by NHTSA indicate that shock absorber degradation does have an effect on the handling characteristics of motor vehicles. Therefore, based on currently available data, NHTSA concludes that the shock absorbers are a contributing factor to safe motor vehicle operations, and Ford's petition is denied.

In consideration of the foregoing, 49 CFR Part 570, Subpart B, Motor Vehicles With a GVWR of More Than 10,000 Pounds, is amended as follows:

*Effective date:* February 4, 1975. Because the amendments correct errors and modify inspection procedures, but create no additional burden, it is found for good cause shown that they should be effective immediately on publication.

(Secs. 103, 108, 119, Pub. L. 84-563, 80 Stat. 718; 15 U.S.C. 1392, 1397, 1401; delegation of authority at 49 CFR 1.51)

Issued on January 24, 1975.

Noel C. Bufe  
Acting Administrator

40 F.R. 5159  
February 4, 1975

## PREAMBLE TO AMENDMENT TO PART 570—VEHICLE IN USE INSPECTION STANDARDS

(Docket No. 73-9; Notice 10)

This notice amends 49 CFR Part 570, Subpart B, Vehicle in Use Inspection Standards for Vehicles With GVWR of More Than 10,000 Pounds, and responds to a petition to amend 49 CFR Part 570, Subpart A, Vehicle in Use Inspection Standards for Vehicles With GVWR of 10,000 Pounds or Less.

On December 17, 1974, the Illinois Department of Transportation on behalf of the American Association of Motor Vehicle Administrators petitioned the National Highway Traffic Safety Administration (NHTSA) to revise the toe-in alignment tolerances found in § 570.7(d) of the Vehicle in Use Inspection Standards (49 CFR 570.7(d)). In support of its petition, Illinois forwarded a report written by the Amerco Technical Center, a wholly-owned subsidiary of the firm which also owns the U-Haul rental system and Kar-Go manufacturing service, and vehicle repair centers. The report recommended that the Vehicle in Use Inspection Standards should be amended to establish maximum toe-in readings based on vehicle type rather than vehicle model and manufacturer.

Section 570.7(d), Steering systems alignment, requires that toe-in and toe-out measurements for motor vehicles with a GVWR of 10,000 pounds or less shall not be greater than 1.5 times the values listed in the vehicle manufacturer's service specifications for alignment settings. This tolerance was established to allow for the degradation that occurs in the vehicle alignment system due to wear, while maintaining a reasonable safety standard for wheel alignment.

Toe-in settings are established by and are available through vehicle manufacturers for the specific vehicle under consideration. For ease of usage, these specifications have also been summarized in chart form by manufacturers of test

and alignment equipment, and are readily available to inspection stations, service stations, wheel alignment centers, and other businesses or agencies that perform toe-in inspection or wheel alignment adjustment services. Applying a factor of 1.5 times the manufacturer's toe-in specifications is relatively simple and should not lead to confusion on the part of persons performing vehicle inspections or adjustment services.

The NHTSA concludes that the recommendation of Amerco to establish one specification for all American made passenger cars (1960-1974), one specification for all light duty trucks under 10,000 pounds GVWR (1962-1974), and one specification for the majority of all foreign made vehicles would be unreasonable in light of the wide variations in toe-in specifications for these vehicles. Each vehicle manufacturer tailors the wheel alignment specifications to obtain optimum vehicle handling characteristics. Although standardization in the area of toe-in alignment tolerances might be desirable, the wide variance of specific toe-in settings required for the different makes, models, and years of manufacture of vehicles covered under this section precludes standardization by regulatory fiat. Therefore, the petition of the Illinois Department of Transportation is denied.

On February 4, 1975, amendments to Part 570, Subpart B, Vehicle in Use Inspection Standards for Vehicles With GVWR of More Than 10,000 Pounds, were published in the Federal Register (40 F.R. 5159). Requests for clarification, the correction of clerical errors and petitions for reconsideration were received from Midland-Ross Corporation (Midland), Bendix Corporation (Bendix), American Trucking Association (ATA) and Mack Truck Co. (Mack).

Petitions for reconsideration of § 570.57, *Air brake system and air-over-hydraulic brake subsystem*, were received from ATA, Bendix, Mack, and Midland-Ross. The petitioners were concerned with the air brake system pressure build-up time requirements and the associated inspection procedures.

The ATA petition pointed out the problems involved with inspector identification of the number and type of brake chambers and the size of the air reservoir used with existing air brake systems on certain vehicles. It suggested that it may be difficult for an inspector to obtain the required reference information prior to his being able to use Table 1, "Air Brake System Pressure Build-Up Time." Placarding truck units with this information would be difficult, inasmuch as there are no existing standards relative to the placement of or requirements for placards. Retrofitting older vehicles with placards is equally difficult. Combination vehicles would pose additional problems because a tractor manufacturer could not anticipate the type of trailer that might be coupled to his tractor, thus making it difficult to label it with the information necessary to utilize Table 1 and Table 2.

Bendix and Mack petitioned for clarification of the values used in the calculation of Table 2, "Chamber Volumes for Representative Brake Chambers," as well as the use of the values from Table 2 in calculating the build-up time values in Table 1. The petitioners were concerned with the values used because the chamber volumes utilized in Table 2 were developed for use with air reservoir systems using an 8:1 ratio of air reservoir volume to brake chamber volume, rather than the present 12:1 ratio required by Standard No. 121 for vehicles manufactured on or after March 1, 1975. The petitioners were also concerned with the problems in inspection of brake systems, caused by the fact that the majority of trucks on the road were built prior

to March 1, 1975, and would not have adequate reservoir capacity in relation to brake chamber volume.

The ATA suggested adoption of the industry accepted procedure of combining the pressure drop test with the pressure recovery test, thereby eliminating all questions concerning reservoir size, compressor capacity, and the number and size of brake chambers. By doing this, the inspection procedure will be greatly simplified without sacrificing the effectiveness of the inspection. With the elimination of the requirement for the determination of brake chamber volumes and reservoir capacities, the necessity for Table 1 and Table 2 no longer exists in the determination of air brake system build-up time.

For the reasons discussed, the petitions from ATA, Bendix, Mack, and Midland-Ross are hereby granted. In addition, other subparagraphs of § 570.57(a) are reworded to clarify their meaning.

In consideration of the foregoing, 49 CFR Part 570, Subpart B, Vehicle in Use Inspection Standards for Vehicles With GVWR of More Than 10,000 Pounds, is amended . . . .

*Effective date:* April 1, 1976. Because the amendments create no additional burden on any person, it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 103, 108, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1397, 1407); delegation of authority at 49 CFR 1.50.)

Issued on March 29, 1976.

James B. Gregory  
Administrator

**41 F.R. 13923**  
**April 1, 1976**



## PART 570—VEHICLE IN USE INSPECTION STANDARDS

### Subpart A—Vehicles With GVWR of 10,000 Pounds or Less

#### 570.1 Scope

#### 570.2 Purpose

#### 570.3 Applicability

#### 570.4 Definitions

#### 570.5 Service brake system

#### 570.6 Brake power unit

#### 570.7 Steering systems

#### 570.8 Suspension systems

#### 570.9 Tires

#### 570.10 Wheel assemblies

AUTHORITY: Secs. 103, 108, 119, Public Law 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1397, 1407; delegation of authority at 49 CFR 1.51.

**§ 570.1 Scope.** This part specifies standards and procedures for inspection of hydraulic service brake systems, steering and suspension systems, and tire and wheel assemblies of motor vehicles in use.

**§ 570.2 Purpose.** The purpose of this part is to establish criteria for the inspection of motor vehicles by State inspection systems, in order to reduce death and injuries attributable to failure or inadequate performance of motor vehicle systems.

**§ 570.3 Applicability.** This part does not in itself impose requirements on any person. It is intended to be implemented by States through the highway safety program standards issued under the Highway Safety Act (23 U.S.C. 402) with respect to inspection of motor vehicles with gross vehicle weight rating of 10,000 pounds or less, except motorcycles or trailers.

**§ 570.4 Definitions.** Unless otherwise indicated, all terms used in this part that are defined

in 49 CFR Part 571, Motor Vehicle Safety Standards, are used as defined in that part.

**§ 570.5 Service brake system.** Unless otherwise noted, the force to be applied during inspection procedures to power-assisted and full-power brake systems is 25 lb., and to all other systems, 50 lb.

(a) *Failure indicator.* The brake system failure indicator lamp, if part of a vehicle's original equipment, shall be operable. (This lamp is required by Federal Motor Vehicle Safety Standard No. 105, 49 CFR 571.105, on every new passenger car manufactured on or after January 1, 1968, and on other types of motor vehicles manufactured on or after September 1, 1975.)

*Inspection procedure.* Apply the parking brake and turn the ignition to start, or verify lamp operation by other means indicated by the vehicle manufacturer that the brake system failure indicator lamp is operable.

(b) *Brake system integrity.* The brake system shall demonstrate integrity as indicated by no perceptible decrease in pedal height under a 125 pound force applied to the brake pedal or by no illumination of the brake system failure indicator lamp. The brake system shall withstand the application of force to the pedal without failure of any line or other part.

*Inspection procedure.* With the engine running on vehicles equipped with power brake systems, and the ignition turned to "on" in other vehicles, apply a force of 125 pounds to the brake pedal and hold for 10 seconds. Note any decrease in pedal height, and whether the lamp illuminates.

(c) *Brake pedal reserve.* When the brake pedal is fully depressed, the distance that the pedal has traveled from its free position shall

be not greater than 80 percent of the total distance from its free position to the floorboard or other object that restricts pedal travel.

*Inspection procedure.* Measure the distance (A) from the free pedal position to the floorboard or other object that restricts brake pedal travel. Depress the brake pedal, and with the force applied measure the distance (B) from the depressed pedal position to the floorboard or other object that restricts pedal travel. Determine the percentage as  $\frac{A-B}{A} \times 100$ . The engine must

be operating when power-assisted brakes are checked. The pedal reserve check is not required for vehicles equipped with full-power (central hydraulic) brake systems, or to vehicles with brake systems designed to operate with greater than 80 percent pedal travel.

(d) *Service brake performance.* Compliance with one of the following performance criteria will satisfy the requirements of this section. Verify that tire inflation pressure is within the limits recommended by vehicle manufacturer before conducting either of the following tests.

(1) *Roller-type or drive-on platform tests.* The force applied by the brake on a front wheel or a rear wheel shall not differ by more than 20 percent from the force applied by the brake on the other front wheel or the other rear wheel respectively.

*Inspection procedure.* The vehicle shall be tested on a drive-on platform, or a roller-type brake analyzer with the capability of measuring equalization. The test shall be conducted in accordance with the test equipment manufacturer's specifications. Note the left to right brake force variance.

(2) *Road test.* The service brake system shall stop the vehicle in a distance of 25 feet or less from a speed of 20 miles per hour without leaving a 12-foot-wide lane.

*Inspection procedure.* The road test shall be conducted on a level (not to exceed plus or minus one percent grade) dry, smooth, hard-surfaced road that is free from loose material, oil or grease. The service brakes shall be applied at a vehicle speed of 20 miles per hour and the vehicle shall be brought to a stop as specified. Measure the distance required to stop.

(c) *Brake hoses and Assemblies.* Brake hoses shall not be mounted so as to contact the vehicle body or chassis. Hoses shall not be cracked, chafed, or flattened. Protective devices, such as "rub rings," shall not be considered part of the hose or tubing.

*Inspection procedure.* Examine visually, inspecting front brake hoses through all wheel positions from full left to full right for conditions indicated.

[NOTE: to inspect for (f), (g), and (h) below, remove at a minimum one front wheel and one rear wheel.]

(f) *Disc and drum condition.* If the drum is embossed with a maximum safe diameter dimension or the rotor is embossed with a minimum safety thickness dimension, the drum or disc shall be within the appropriate specifications. These dimensions will be found on motor vehicles manufactured since January 1, 1971, and may be found on vehicles manufactured for several years prior to that time. If the drums and discs are not embossed the drums and discs shall be within the manufacturer's specifications.

*Inspection procedure.* Examine visually for condition indicated, measuring as necessary.

(g) *Friction materials.* On each brake the thickness of the lining or pad shall not be less than one thirty-second of an inch over the rivet heads, or the brake shoe on bonded linings or pads. Brake linings and pads shall not have cracks or breaks that extend to rivet holes except minor cracks that do not impair attachment. Drum brake linings shall be securely attached to brake shoes. Disc brake pads shall be securely attached to shoe plates.

*Inspection procedure.* Examine visually for conditions indicated, and measure height of rubbing surface of lining over rivet heads. Measure bonded lining thickness over shoe surface at the thinnest point on the lining or pad.

(h) *Structural and mechanical parts.* Backing plates and caliper assemblies shall not be deformed or cracked. System parts shall not be broken, misaligned, missing, binding, or show evidence of severe wear. Automatic adjusters and other parts shall be assembled and installed correctly.

*Inspection procedure.* Examine visually for conditions indicated.

**§ 570.6 Brake power unit.** Vacuum hoses shall not be collapsed, abraded, broken, improperly mounted or audibly leaking. With residual vacuum exhausted and a constant 25 pound force on the brake pedal, the pedal shall fall slightly when the engine is started, demonstrating integrity of the power assist system. This test is not applicable to vehicles equipped with full power brake system as the service brake performance test shall be considered adequate test of system performance.

*Inspection procedure.* With engine running, examine hose visually and aurally for conditions indicated. Stop engine and apply service brakes several times to destroy vacuum in system. Depress brake pedal with 25 pounds of force and while maintaining that force, start the engine. If brake pedal does not fall slightly under force when the engine starts, there is a malfunction in the power assist system.

#### **§ 570.7 Steering systems.**

(a) *System play.* Lash or free play in the steering system shall not exceed values shown in Table 1.

*Inspection procedure.* With the engine on and the wheels in the straight ahead position, turn the steering wheel in one direction until there is a perceptible movement of a front wheel. If a point on the steering wheel rim moves more than the value shown in Table 1 before perceptible return movement of the wheel under observation, there is excessive lash or free play in the steering system.

TABLE 1.—Steering System Free Play Values

<i>Steering Wheel Diameter (In.)</i>	<i>Lash (In.)</i>
16 or less	2
18	2 $\frac{1}{4}$
20	2 $\frac{1}{2}$
22	2 $\frac{3}{4}$

(b) *Linkage play.* Free play in the steering linkage shall not exceed one-quarter of an inch.

*Inspection procedure.* Elevate the front end of the vehicle to load the ball joints. Insure that wheel bearings are correctly adjusted. Grasp the

front and rear of a tire and attempt to turn the tire and wheel assembly left and right. If the free movement at the front or rear tread of the tire exceeds one-quarter inch there is excessive steering linkage play.

(c) *Free turning.* Steering wheels shall turn freely through the limit of travel in both directions.

*Inspection procedure.* Turn the steering wheel through the limit of travel in both directions. Feel for binding or jamming in the steering gear mechanism.

(d) *Alignment.* Toe-in and toe-out measurements shall not be greater than 1.5 times the value listed in the vehicle manufacturer's service specification for alignment setting.

*Inspection procedure.* Verify that toe-in or toe-out is not greater than 1.5 times the values listed in the vehicle manufacturer's service specifications for alignment settings as measured by a bar-type scuff gauge or other toe-in measuring device. Values to convert toe-in readings in inches to scuff gauge readings in ft/mi side-slip for different wheel sizes are provided in Table 2. Tire diameters used in computing scuff gauge readings are based on the average maximum tire dimensions of grown tires in service for typical wheel and tire assemblies.

(e) *Power steering system.* The power steering system shall not have cracked or slipping belts, or insufficient fluid in the reservoir.

*Inspection procedure.* Examine fluid reservoir and pump belts for conditions indicated.

#### **§ 570.8 Suspension systems.**

(a) *Suspension condition.* Ball joint seals shall not be cut or cracked. Structural parts shall not be bent or damaged. Stabilizer bars shall be connected. Springs shall not be broken, or extended by spacers. Shock absorber mountings, shackles, and U-bolts shall be securely attached. Rubber bushings shall not be cracked, extruded out from or missing from suspension joints. Radius rods shall not be missing or damaged.

*Inspection procedure.* Examine front and rear end suspension parts for conditions indicated.

TABLE 2.—Toe-In Settings From Vehicle MFR's Service Specifications

Wheel Size (In)	Nominal Tire Diameter (In)	Readings in Feet Per Mile Sideslip							
		$\frac{1}{16}$ "	$\frac{1}{8}$ "	$\frac{3}{16}$ "	$\frac{1}{2}$ "	$\frac{5}{16}$ "	$\frac{3}{4}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "
13	25.2	13.1	26.2	39.3	52.4	65.5	78.6	91.7	104.8
14	26.4	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.
15	28.5	11.5	23.0	34.5	46.0	57.5	69.0	80.5	92.0
16	35.6	9.3	18.6	27.9	37.2	46.5	55.8	65.1	74.4

(39 F.R. 12867—April 9, 1974. Effective: 5/9/74)

(b) *Shock absorber conditions.* There shall be no oil on the shock absorber housing attributable to leakage by the seal, and the vehicle shall not continue free rocking motion for more than two cycles.

*Inspection procedure.* Examine shock absorbers for oil leaking from within, then with vehicle on a level surface, push down on one end of vehicle and release. Note number of cycles of free rocking motion. Repeat procedure at other end of vehicle.

#### § 570.9 Tires.

(a) *Tread depth.* The tread on each tire shall be not less than two thirty-seconds of an inch deep.

*Inspection procedure.* Passenger car tires have tread depth indicators that become exposed when tread depth is less than two thirty-seconds of an inch. Inspect for indicators in any two adjacent major grooves at three locations spaced approximately equally around the outside of the tire. For vehicles other than passenger cars it may be necessary to measure tread depth with a tread gauge.

(b) *Type.* Vehicle shall be equipped with tires on the same axle that are matched in tire size designation, construction, and profile.

*Inspection procedure.* Examine visually. A major mismatch in tire size designation, construction, and profile between tires on the same axle, or a major deviation from the size as recommended by the manufacturer (e.g. as indicated on the glove box placard on 1968 and later passenger cars) are causes for rejection.

(c) *General condition.* Tires shall be free from chunking, humps, knots, or bulges evidencing cord, ply, or tread separation from the casing or other adjacent materials.

(d) *Damage.* Tire cords or belting materials shall not be exposed, either to the naked eye or when cuts or abrasions on the tire are probed.

*Inspection procedures.* Examine visually for conditions indicated, using a blunt instrument if necessary to probe cuts or abrasions.

#### § 570.10 Wheel assemblies.

(a) *Wheel integrity.* A tire rim, wheel disc, or spider shall have no visible cracks, elongated bolt holes or indication of repair by welding.

*Inspection procedure.* Examine visually for conditions indicated.

(b) *Deformation.* The lateral and radial runout of each rim bead area shall not exceed one-eighth of an inch of total indicated runout.

*Inspection procedure.* Using a runout indicator gauge, and a suitable stand, measure lateral and radial runout of rim bead through one full wheel revolution and note runout in excess of one-eighth of an inch.

(c) *Mounting.* All wheel nuts and bolts shall be in place and tight.

*Inspection procedure.* Check wheel retention for conditions indicated.

38 F.R. 23949  
September 5, 1973

**Subpart B—Vehicles With GVWR of More Than 10,000 Pounds**

**570.51 Scope**

**570.52 Purpose**

**570.53 Applicability**

**570.54 Definitions**

**570.55 Hydraulic brake system**

**570.56 Vacuum brake assist unit and vacuum brake system**

**570.57 Air brake system and air-over-hydraulic brake subsystem**

**570.58 Electric brake system**

**570.59 Service brake system**

**570.60 Steering system**

**570.61 Suspension system**

**570.62 Tires**

**570.63 Wheel assemblies**

**AUTHORITY:** Secs. 103, 108, 119, Public Law 89-563, 80 Stat 78, 15 U.S.C. 1392, 1397, 1407; delegation of authority at 49 CFR 1.51.

**§ 570.51 Scope.** This part specifies standards and procedures for the inspection of brake, steering and suspension systems, and tire and wheel assemblies, of motor vehicles in use with a gross vehicle weight rating of more than 10,000 pounds.

**§ 570.52 Purpose.** The purpose of this part is to establish criteria for the inspection of motor vehicles through State inspection programs, in order to reduce deaths and injuries attributable to failure or inadequate performance of the motor vehicle systems covered by this part.

**§ 570.53 Applicability.** This part does not in itself impose requirements on any person. It is intended to be implemented by States through the highway safety program standards issued under the Highway Safety Act (23 U.S.C. 402) with respect to inspection of motor vehicles with gross vehicle weight rating greater than 10,000 pounds, except mobile structure trailers.

**§ 570.54 Definitions.** Unless otherwise indicated, all terms used in this part that are defined in 49 CFR Part 571, Motor Vehicle Safety Standards, are used as defined in that part.

“Air-over-hydraulic brake subsystem” means a subsystem of the air brake that uses compressed air to transmit a force from the driver control to a hydraulic brake system to actuate the service brakes.

“Electric brake system” means a system that uses electric current to actuate the service brake.

“Vacuum brake system” means a system that uses a vacuum and atmospheric pressure for transmitting a force from the driver control to the service brake, but does not include a system that uses vacuum only to assist the driver in applying muscular force to hydraulic or mechanical components.

**§ 570.55 Hydraulic brake system.** The following requirements apply to vehicles with hydraulic brake systems.

(a) *Brake system failure indicator.* The hydraulic brake system failure indicator lamp, if part of a vehicle's original equipment, shall be operable.

*Inspection procedure.* Apply the parking brake and turn the ignition to start to verify that the brake system failure indicator lamp is operable, or verify by other means recommended by the vehicle manufacturer.

(b) *Brake system integrity.* The hydraulic brake system shall demonstrate integrity as indicated by no perceptible decrease in pedal height under a 125-pound force applied to the brake pedal and by no illumination of the brake system failure indicator lamp. The brake system shall withstand the application of force to the pedal without failure of any tube, hose or other part.

*Inspection procedure.* With the engine running in vehicles equipped with power brake systems and the ignition turned to “on” in other vehicles, apply a force of 125 pounds to the brake pedal and hold for 10 seconds. Note any additional decrease in pedal height after the initial decrease, and whether the brake system failure indicator lamp illuminates.

(c) *Brake pedal reserve.* When the brake pedal is depressed with a force of 50 pounds, the distance that the pedal has traveled from its free position shall be not greater than 80 percent of the total distance from its free position to the

floorboard or other object that restricts pedal travel. The brake pedal reserve test is not required for vehicles with brake systems designed by the original vehicle manufacturer to operate with greater than 80 percent pedal travel.

*Inspection procedure.* Measure the distance (A) from the free pedal position to the floorboard or other object that restricts brake pedal travel. Depress the brake pedal, and with the force applied measure the distance (B) from the depressed pedal position to the floorboard or other object that restricts pedal travel. Determine the pedal travel percentage as  $\frac{A-B}{A} \times 100$ .

The engine must be operating when power-assisted brakes are checked.

(d) *Brake hoses, master cylinder, tubes and tube assemblies.* Hydraulic brake hoses shall not be mounted so as to contact the vehicle body or chassis. Hoses shall not be cracked, chafed, or flattened. Brake tubes shall not be flattened or restricted. Brake hoses and tubes shall be attached or supported to prevent damage by vibration or abrasion. Master cylinder shall not show signs of leakage. Hose or tube protective rings or devices shall not be considered part of the hose or tubing.

*Inspection procedure.* Examine visually brake master cylinder, hoses and tubes, including front brake hoses, through all wheel positions from full left turn to full right turn for conditions indicated.

**§ 570.56 Vacuum brake assist unit and vacuum brake system.** The following requirements apply to vehicles with vacuum brake assist units and vacuum brake systems.

(a) *Vacuum brake assist unit integrity.* The vacuum brake assist unit shall demonstrate integrity as indicated by a decrease in pedal height when the engine is started and a constant 50-pound force is maintained on the pedal.

*Inspection procedure.* Stop the engine and apply service brake several times to destroy vacuum in system. Depress the brake pedal with 50 pounds of force and while maintaining that force, start the engine. If the brake pedal does not move slightly under force when the engine starts, there is a malfunction in the power assist unit.

(b) *Low-vacuum indicator.* If the vehicle has a low-vacuum indicator, the indicator activation level shall not be less than 8 inches of mercury.

*Inspection procedure.* Run the engine to evacuate the system fully. Shut off the engine and slowly reduce the vacuum in the system by moderate brake applications until the vehicle gauge reads 8 inches of mercury. Observe the functioning of the low-vacuum indicator.

(c) *Vacuum brake system integrity.* The vacuum brake system shall demonstrate integrity by meeting the following requirements: (1) The vacuum brake system shall provide vacuum reserve to permit one service brake application with a brake pedal force of 50 pounds after the engine is turned off without actuating the low vacuum indicator. (2) Trailer vacuum brakes shall operate in conjunction with the truck or truck tractor brake pedal.

*Inspection procedure.* Check the trailer vacuum system by coupling trailer(s) to truck or truck tractor and opening trailer shutoff valves. Start the engine and after allowing approximately 1 minute to build up the vacuum, apply and release the brake pedal. In the case of trailer brakes equipped with brake chamber rods, observe the chamber rod movement. Run the engine to re-establish maximum vacuum, then shut off the engine and apply the brakes with a 50-pound force on the brake pedal. Note the brake application and check for low-vacuum indicator activation.

For a combination vehicle equipped with breakaway protection and no reservoir on the towing vehicle supply line, close the supply line shutoff valve and disconnect the supply line. Apply a 50-pound force to the brake pedal on the towing vehicle and release. Trailer brakes should remain in the applied position.

(d) *Vacuum system hoses, tubes and connections.* Vacuum hoses, tubes and connections shall be in place and properly supported. Vacuum hoses shall not be collapsed, cracked or abraded.

*Inspection procedure.* With the engine running, examine hoses and tubes for the conditions indicated and note broken or missing clamps.

**§ 570.57 Air brake system and air-over-hydraulic brake subsystem.** The following requirements apply to vehicles with air brake and air-over-hydraulic brake systems. Trailer(s) must be coupled to a truck or truck-tractor for the purpose of this inspection, except as noted.

(a) *Air brake system integrity.* The air brake system shall demonstrate integrity by meeting the following requirements:

(1) With the vehicle in a stationary position, compressed air reserve shall be sufficient to permit one full service brake application, after the engine is stopped and with the system fully charged, without lowering reservoir pressure more than 20 percent below the initial reading.

(2) The air brake system compressor shall increase the air pressure in the reservoir(s) from the level developed after the test prescribed in § 570.57(a)(1) to the initial pressure noted before the full brake application, with the engine running at the manufacturer's maximum recommended number of revolutions per minute with the compressor governor in the cut-off position, in not more than 30 seconds for vehicles manufactured prior to March 1, 1975. For vehicles manufactured on or after March 1, 1975, the time allowed for air pressure build-up shall not exceed 45 seconds.

(3) The warning device (visual or audible) connected to the brake system air pressure source shall be activated when air pressure is lowered to an activating level that is not less than 50 psi. For vehicles manufactured to conform to Federal Motor Vehicle Safety Standard No. 121, the low-pressure indicator shall be activated when air pressure is lowered to an activating level that is not less than 60 psi.

(4) The governor cut-in pressure shall be not lower than 80 psi, and the cut-out pressure shall be not higher than 135 psi, unless other values are recommended by the vehicle manufacturer.

(5) Air brake pressure shall not drop more than 2 psi in 1 minute for single vehicles or more than 3 psi in 1 minute for combination vehicles, with the engine stopped and service brakes released. There may be an additional 1 psi drop per minute for each additional towed vehicle.

(6) With the reservoir(s) fully charged, air pressure shall not drop more than 3 psi in 1 minute for single vehicles or more than 4 psi in 1 minute for combination vehicles, with the engine stopped and service brakes fully applied. There may be an additional 1 psi drop per minute for each additional towed vehicle.

(7) The compressor drive belt shall not be badly worn or frayed and belt-tension shall be sufficient to prevent slippage.

*Inspection procedure.* With the air system charged, open the drain cocks in the service and supply reservoir on the truck or truck-tractor. Note the pressure at which the visual or audible warning device connected to the low-pressure indicator is activated. Close the drain cocks, and, with the trailer(s) uncoupled, check air pressure build-up at the manufacturer's recommended engine speed. Observe the time required to raise the air pressure from 85 to 100 psi. Continue running the engine until the governor cuts out and note the pressure. Reduce engine speed to idle, couple the trailer(s), if applicable, and make a series of brake applications. Note the pressure at which the governor cuts in. Increase engine speed to fast idle and charge the system to its governed pressure. Stop the engine and record the pressure drop in psi per minute with brakes released and with brakes fully applied.

(b) *Air brake system hoses, tubes and connections.* Air system tubes, hoses and connections shall not be restricted, cracked or improperly supported, and the air hose shall not be abraded.

*Inspection procedure.* Stop the engine and examine air hoses, tubes and connections visually for conditions specified.

(c) *Air-over-hydraulic brake subsystem integrity.* The air-over-hydraulic brake subsystem shall demonstrate integrity by meeting the following requirements:

(1) The air brake system compressor shall increase the air pressure in the reservoir(s) from the level developed after the test prescribed in § 570.57(a)(1) to the initial pressure noted before the full brake application, with the engine running at the manufacturer's recommended number of revolutions per minute and the compressor governor in the cut-out

position, in not more than 30 seconds for vehicles manufactured prior to March 1, 1975. For vehicles manufactured on or after March 1, 1975, the time for air pressure build up shall not exceed 45 seconds.

(2) The warning device (visual or audible) connected to the brake system air pressure source shall be activated when the air pressure is lowered to not less than 50 psi.

(3) The governor cut-in pressure shall be not lower than 80 psi, and the cut-out pressure shall not be higher than 135 psi, unless other values are recommended by the vehicle manufacturer.

(4) Air brake pressure shall not drop more than 2 psi in 1 minute for single vehicles or more than 3 psi in 1 minute for combination vehicles, with the engine stopped and service brakes released. Allow a 1-psi drop per minute for each additional towed vehicle.

(5) With the reservoir(s) fully charged, air pressure shall not drop more than 3 psi in 1 minute for single vehicles or more than 4 psi in 1 minute for combination vehicles, with the engine stopped and service brakes fully applied. Allow a 1-psi pressure drop in 1 minute for each additional towed vehicle.

(6) The compressor drive belt shall not be badly worn or frayed and belt tension shall be sufficient to prevent slippage.

*Inspection procedure.* With the air system charged, open the drain cocks in the service and supply reservoir on the truck or truck-tractor. Note the pressure at which the visual or audible warning device connected to the low pressure indicator is activated. Close the drain cocks and, with the trailers uncoupled, check air pressure build up at the manufacturer's recommended engine speed. Observe the time required to raise the air pressure from 85 to 100 psi. Continue running the engine until the governor cuts out and note the pressure. Reduce engine speed to idle, couple trailers, and make a series of brake applications. Note the pressure at which the governor cuts in. Increase engine speed to fast idle and charge the system to its governed pressure. Stop the engine and record the pressure

drop in psi per minute with brakes released and with brakes fully applied.

(d) *Air-over-hydraulic brake subsystem hoses, master cylinder, tubes and connections.* System tubes, hoses and connections shall not be cracked or improperly supported, the air and hydraulic hoses shall not be abraded and the master cylinder shall not show signs of leakage.

*Inspection procedure.* Stop the engine and examine air and hydraulic brake hoses, brake master cylinder, tubes and connections visually for conditions specified.

#### **§ 570.58 Electric brake system.**

(a) *Electric brake system integrity.* The average brake amperage value shall be not more than 20 percent above, and not less than 30 percent below, the brake manufacturer's maximum current rating. In progressing from zero to maximum, the ammeter indication shall show no fluctuation evidencing a short circuit or other interruption of current.

*Inspection procedure.* Insert a low range (0 to 25 amperes for most 2- and 4-brake systems and 0 to 40 amperes for a 6-brake system) d.c. ammeter into the brake circuit between the controller and the brakes. With the controller in the "off" position, the ammeter should read zero. Gradually apply the controller to the "full on" position for a brief period (not to exceed 1 minute) and observe the maximum ammeter reading. Gradually return the controller to "full off" and observe return to zero amperes. Divide the maximum ammeter reading by the number of brakes and determine the brake amperage value.

(b) *Electric brake wiring condition.* Electric brake wiring shall not be frayed. Wiring clips or brackets shall not be broken or missing. Terminal connections shall be clean. Conductor wire gauge shall not be below the brake manufacturer's minimum recommendation.

*Inspection procedure.* Examine visually for conditions specified.

#### **§ 570.59 Service brake system.**

(a) *Service brake performance.* Compliance with any one of the following performance cri-



teria will satisfy the requirements of this section. Verify that tire inflation pressure is within the limits recommended by the vehicle manufacturer before conducting either of the following tests.

(1) *Roller-type or drive-on platform tests.* The force applied by the brake on a front wheel or a rear wheel shall not differ by more than 25 percent from the force applied by the brake on the other front wheel or the other rear wheel respectively.

*Inspection procedure.* The vehicle shall be tested on a drive-on platform, or a roller-type brake analyzer with the capability of measuring equalization. The test shall be conducted in accordance with the test equipment manufacturer's specifications. Note the brake force variance.

(2) *Road test.* The service brake system shall stop single unit vehicles, except truck-tractors, in a distance of not more than 35 feet, or combination vehicles and truck-tractors in a distance of not more than 40 feet, from a speed of 20 mph, without leaving a 12-foot-wide lane.

*Inspection procedure.* The road test shall be conducted on a level (not to exceed plus or minus 1 percent grade), dry, smooth, hardsurfaced road that is free from loose material, oil or grease. The service brakes shall be applied at a vehicle speed of 20 mph and the vehicle shall be brought to a stop as specified. Measure the distance required to stop.

Note. Inspect for (b), (c), and (d) below on vehicles equipped with brake inspection ports or access openings, and when removal of wheel is not required.

(b) *Disc and drum condition.* If the drum is embossed with a maximum safe diameter dimension or the rotor is embossed with a minimum safe thickness dimension, the drum or disc shall be within the appropriate specifications. These dimensions will generally be found on motor vehicles manufactured since January 1, 1971, and may be found on vehicles manufactured for several years prior to that time. If the drums and discs are not embossed, they shall be within the manufacturer's specifications.

*Inspection procedure.* Examine visually for the condition indicated, measuring as necessary.

(c) *Friction materials.* On each brake, the thickness of the lining or pad shall not be less than one thirty-second of an inch over the fastener, or one-sixteenth of an inch over the brake shoe on bonded linings or pads. Brake linings and pads shall not have cracks or breaks that extend to rivet holes except minor cracks that do not impair attachment. The wire in wire-backed lining shall not be visible on the friction surface. Drum brake linings shall be securely attached to brake shoes. Disc brake pads shall be securely attached to shoe plates.

*Inspection procedure.* Examine visually for the conditions indicated, and measure the height of the rubbing surface of the lining over the fastener heads. Measure bonded lining thickness over the surface at the thinnest point on the lining or pad.

(d) *Structural and mechanical parts.* Backing plates, brake spiders and caliper assemblies shall not be deformed or cracked. System parts shall not be broken, misaligned, missing, binding, or show evidence of severe wear. Automatic adjusters and other parts shall be assembled and installed correctly.

*Inspection procedure.* Examine visually for conditions indicated.

#### § 570.60 Steering system.

(a) *System play.* Lash or free play in the steering system shall not exceed the values shown in Table 3.

*Inspection procedure.* With the engine on and the steering axle wheels in the straight ahead position, turn the steering wheel in one direction until there is a perceptible movement of the wheel. If a point on the steering wheel rim moves more than the value shown in table 3 before perceptible return movement of the wheel under observation, there is excessive lash or free play in the steering system.

TABLE 3. STEERING WHEEL FREE PLAY VALUE

Steering Wheel Diameter (Inches)	Lash (Inches)
16 or less	2
18	2¼
20	2½
22	2¾

(b) *Linkage play.* Free play in the steering linkage shall not exceed the values shown in Table 4.

*Inspection procedure.* Elevate the front end of the vehicle to load the ball joints, if the vehicle is so equipped. Insure that wheel bearings are correctly adjusted. Grasp the front and rear of a tire and attempt to turn the tire and wheel assembly left to right. If the free movement at the front or rear tread of the tire exceeds the applicable value shown in Table 4, there is excessive steering linkage play.

Table 4. Front Wheel Steering Linkage Free Play

Nominal bead diameter or rim size (inches)	Play (inches)
16 or less	$\frac{1}{4}$
16.01 through 18.00	$\frac{3}{8}$
18.01 or more	$\frac{1}{2}$

(c) *Free turning.* Steering wheels shall turn freely through the limit of travel in both directions.

*Inspection procedure.* With the engine running on a vehicle with power steering, or the steerable wheels elevated on a vehicle without power steering, turn the steering wheel through the limit of travel in both directions. Feel for binding or jamming in the steering gear mechanism.

(d) *Alignment.* Toe-in or toe-out condition shall not be greater than 1.5 times the values listed in the vehicle manufacturer's service specification for alignment setting.

*Inspection procedure.* Drive the vehicle over a sideslip indicator or measure with a tread gauge, and verify that the toe-in or toe-out is not greater than 1.5 times the values listed in the vehicle manufacturer's service specification.

(e) *Power steering system.* The power steering system shall not have cracked, frayed or slipping belts, chafed or abraded hoses, show signs of leakage or have insufficient fluid in the reservoir.

*Inspection procedure.* Examine fluid reservoir, hoses and pump belts for the conditions indicated.

NOTE: Inspection of the suspension system must not recede the service brake performance test.

#### § 570.61 Suspension system.

(a) *Suspension condition.* Ball joint seals shall not be cut or cracked, other than superficial surface cracks. Ball joints and kingpins shall not be bent or damaged. Stabilizer bars shall be connected. Springs shall not be broken and coil springs shall not be extended by spacers. Shock absorber mountings, shackles, and U-bolts shall be securely attached. Rubber bushings shall not be cracked, extruded out from or missing from suspension joints. Radius rods shall not be missing or damaged.

*Inspection procedure.* Examine front and rear end suspension parts for the conditions indicated.

(b) *Shock absorber condition.* There shall be no oil on the shock absorber housings attributable to leakage by the seal.

*Inspection procedure.* Examine shock absorbers for oil leakage from within.

#### § 570.62 Tires.

(a) *Tread depth.* The tread shall be not less than four thirty-seconds of an inch deep on each front tire of any vehicle other than a trailer and not less than two thirty-seconds of an inch on all other tires.

*Inspection procedure.* For tires with treadwear indicators, check for indicators in any two adjacent major grooves at three locations spaced approximately 120° apart around the circumference of the tire. For tires without treadwear indicators, measure the tread depth with a suitable gauge or scale in two adjacent major grooves at 3 locations spaced approximately 120° apart around the circumference of the tire at the area of greatest wear.

(b) *Type.* Vehicles should be equipped with tires on the same axle that are matched in construction and tire size designation, and dual tires shall be matched for overall diameter within one-half inch.

*Inspection procedure.* Examine visually. A mismatch in size and construction between

tires on the same axle, or a major deviation from the size recommended by the vehicle or tire manufacturer, is a cause for rejection. On a dual-tire arrangement the diameter of one of the duals must be within one-half inch of the other as measured by a gauge block inserted between the tire and a caliper.

(c) *General condition.* Tires shall be free from chunking, bumps, knots, or bulges evidencing cord, ply or tread separation from the casing.

*Inspection procedure.* Examine visually for the conditions indicated.

(d) *Damage.* Tire cords or belting materials shall not be exposed, either to the naked eye or when cuts on the tire are probed. Reinforcement repairs to the cord body are allowable on tires other than front-mounted tires.

*Inspection procedure.* Examine visually for the conditions indicated, using a blunt instrument if necessary to probe cuts and abrasions.

(e) *Special purpose tires.* Tires marked "Not For Highway Use" or "Farm Use Only" or other such restrictions shall not be used on any motor vehicle operating on public highways.

*Inspection procedure.* Examine visually for tires labeled with specific restrictions.

**§ 570.63 Wheel assemblies.**

(a) *Wheel integrity.* A tire rim, wheel disc or spider shall have no visible cracks, elongated bolt holes, or indications of in-service repair by welding.

*Inspection procedure.* Examine visually for the conditions indicated.

(b) *Cast Wheels.* Cast wheels shall not be cracked or show evidence of excessive wear in the clamp area.

*Inspection procedure.* Examine visually for the conditions indicated.

(c) *Mounting.* All wheel nuts shall be in place and tight.

*Inspection procedure.* Check wheel retention for the conditions indicated.

**39 F.R. 26026  
July 16, 1974**



## Section Two

### Alphabetical Listing of Federal Motor Vehicle Safety Standards

<i>Title</i>	<i>Standard No.</i>
Accelerator Control Systems -----	124
Brake Fluids -----	116
Brake Hoses -----	106-74
Brakes, Air Systems -----	121
Brakes, Hydraulic -----	105-75
Brakes, Hydraulic -----	105-83
Brakes, Motorcycles -----	122
Bus Window Retention and Release -----	217
Child Restraint Systems -----	213
Controls and Displays, Motorcycle -----	123
Controls and Displays -----	101-80
Door Locks and Door Retention Components -----	206
Flammability of Interior Materials -----	302
Fuel System Integrity -----	301-75
Glazing Materials -----	205
Headlamp Concealment Devices -----	112
Head Restraints -----	202
Hood Latch Systems -----	113
Impact Protection for the Driver from the Steering Control System -----	203
Lamps, Reflective Devices and Associated Equipment -----	108
Mirrors, Rearview -----	111
Motorcycle Helmets -----	218
Occupant Crash Protection -----	208
Occupant Protection in Interior Impact -----	201
Reflecting Surfaces -----	107
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School Bus Body Joint Strength -----	221
School Bus Rollover Protection -----	220
School Bus Seating and Crash Protection -----	222
Seat Belt Assemblies -----	209
Seat Belt Assembly Anchorages -----	210
Seating Systems -----	207
Side Door Strength -----	214
Steering Control Rearward Displacement -----	204
Theft Protection -----	114

# Alphabetical Listing—Continued

<i>Title</i>	<i>Standard No.</i>
Tires, New Pneumatic -----	109
Tires, New Pneumatic for Vehicles Other Than Passenger Cars -----	119
Tires, Retreaded Pneumatic -----	117
Tire Selection and Rims -----	110
Tire Selection and Rims, for Vehicles Other Than for Passenger Cars -----	120
Transmission Shift Lever Sequence, Starter Interlock and Transmission Braking Effect -----	102
Truck—Camper Loading -----	126
Vehicle Identification Number -----	115
Warning Devices -----	125
Wheel Nuts, Wheel Discs and Hub Caps -----	211
Window Systems, Power-Operated -----	118
Windshield Defrosting and Defogging Systems -----	103
Windshield Mounting -----	212
Windshield Wiping and Washing Systems -----	104
Windshield Zone Intrusion -----	219

**PREAMBLE TO PART 571**  
**Initial Federal Motor Vehicle Safety Standards**  
**(Docket No. 3)**

This order establishes Initial Federal Motor Vehicle Safety Standards for new motor vehicles and equipment. A notice of rule making proposing the Initial Standards was issued on November 30, 1966 (31 F.R. 15212, corrected 31 F.R. 15600). All pertinent matter in the written and oral comments received has been fully considered. Considerations of time prevent discussion of comments on individual standards.

The motor vehicle safety standards are rules as that term is defined in 5 U.S.C. sec. 551(4). The established practice is that the public record of a rule-making procedure under 5 U.S.C. section 553 (former sec. 4 Administrative Procedure Act), involving a substantive rule and instituted upon an agency's own initiative, begins with the notice of rule making. An agency is under no legal duty to reveal the internal processes that shaped the project, and interested persons are not entitled to comment thereon, 5 U.S.C. section 553(b)(3). Where, as here, the addresses of a proposed rule are themselves actively engaged as experts on the subject matter, their understanding of the meaning and effect of a rule is certainly not impaired by the absence of such a disclosure. As a practical proposition, this Agency intends to adopt a policy of the greatest possible disclosure of underlying considerations in future substantive rule making when it will not operate under an unusually tight time schedule. In this instance, such disclosure was not possible, and administrative due process required no more than publication of the notice. The requirement that the standards be based on a record does not operate to require insertion in the record of matter not required as part of a rule-making notice.

The following findings are made with respect to all standards—

(1) Each standard is a minimum standard for motor vehicle or equipment performance which is practicable and meets the need for motor vehicle safety, and provides objective criteria;

(2) Each standard is reasonable, practicable, and appropriate for the particular class of motor vehicle or item of equipment for which it is prescribed;

(3) Each standard will contribute substantially to the purpose of reducing traffic accidents, and deaths and injuries to persons resulting therefrom, in the United States; and

(4) The matter incorporated by reference is reasonably available to the persons affected by this regulation.

In addition to the vehicle classes of passengers cars, motorcycles, trucks, buses, and trailers proposed in the Notice, the initial standards as herein established introduce the new class of "multipurpose passenger vehicles." Only standards proposed in the Notice for vehicles now in this class are made applicable to this class. Each standard applies only to the class of vehicles to which it is made applicable by its terms.

The initial standards may be amended from time to time. Each standard remains in effect until rescinded or superseded by a Revised Standard actually becoming effective.

The requirements of Standard No. 209 were originally published on August 31, 1966 (31 F.R. 11528), as a revision to the existing seat belt standard that had been promulgated by the Secretary of Commerce under the authority of Public Law 88-201. At that time, it was provided that the revised standards would become mandatory after February 28, 1967, and would be an optional alternative to the existing standard until that date. As a result seat belt manu-

facturers had already taken steps to meet the March 1, 1967 date before the Notice for the Initial Federal Motor Vehicle Safety Standards was issued on December 3, 1966. To preserve the continuity of this change to the new seat belt standard, the March 1, 1967 effective date was included in the proposed Initial Federal Motor Vehicle Safety Standards. This places no certification requirement on the vehicle manufacturer, however, until the effective date of the first Standard applicable to a motor vehicle rather than motor vehicle equipment.

In consideration of the foregoing, Chapter II of Title 23 [49] of the Code of Federal Regulations is amended by adding a new Subchapter C—Motor Vehicle Safety Regulations, effective January 1, 1968 except Motor Safety Standard No. 209, "Seat Belt Assemblies—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses," which becomes effective March 1, 1967, to read as set forth below.

This regulation was proposed as Part 245 but will, for reasons of organization of subject matter, be issued as Part 371 [255].

This rule-making action is taken under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. sec. 1392, 1407) and the delegations

of authority of October 20, 1966 (31 F.R. 13952) and January 24, 1967 (32 F.R. 1005).

Issued in Washington, D.C., on January 31, 1967.

Lowell K. Bridwell,  
Acting Under Secretary  
of Commerce for Transportation

**(SUBPART A—GENERAL)**

**Sec.**

- 371.1 Scope**
- 371.3 Definitions**
- 371.5 Matter incorporated by reference**
- 371.7 Applicability**
- 371.9 Separability**
- 371.11 Equivalent demonstration procedure**
- 371.13 Labeling of Chassis Cabs**

**SUBPART B—STANDARDS**

- 371.21 Federal Motor Vehicle Safety Standards.**

**AUTHORITY:** The provisions of this part 371 issued under secs. 103, 119, 80 Stat. 719, 728; 15 U.S.C. 1392, 1407.

**32 F.R. 2408**  
**February 3, 1967**



# **PREAMBLE TO AMENDMENTS TO SUBPART A § 571.3b AND § 571.7b**

## **Federal Motor Vehicle Safety Standards Chassis-Cab**

**(Docket No. 21)**

A proposal to amend Part 371, Initial Federal Motor Vehicle Safety Standards, by adding a definition of "incomplete motor vehicles" and specifying labeling requirements was published in the *Federal Register* on December 2, 1967 (32 F.R. 6534), inviting interested persons to comment.

The proposed amendment has been modified to take into account the numerous written and oral comments received. Under the proposed amendment an incomplete vehicle was considered a separable type of motor vehicle. Some of the comments noted that it was unrealistic to consider a bare chassis a motor vehicle since it was no more a motor vehicle and capable of being used on the public highways than many other parts which are incorporated into a completed vehicle. Comments also indicated that the overwhelming majority of what was called incomplete motor vehicles are in the form of a chassis with a cab attached. As such, chassis-cabs have the capability of conforming to the standards but the manufacturer of the chassis-cab cannot always tell what every end use will be.

Comments from body manufacturers and truck dealers indicated they did not have the expertise or the physical apparatus to independently test for all standards previously met by the manufacturer of the incomplete motor vehicle nor did they think they should have to certify that these standards have been met. The consensus of the comments indicated that a manufacturer or dealer should only be responsible for that which he manufactures or affects in assembling the completed vehicle.

On the basis of the comments it appears inappropriate to require persons who merely add to a chassis-cab a body or work-performing or load-carrying structure to certify and to accept

legal responsibility for the chassis-cab's conformance with all motor vehicle safety standards. Additionally, it appears inappropriate to consider bare chassis and similar assemblages motor vehicles until they reach the chassis-cab stage at which they are capable of meeting standards applicable to their principal end use. Accordingly, the regulation defines a chassis-cab as a vehicle and imposes the obligation of conforming to all standards applicable to its principal end use upon the manufacturer of the chassis-cab with a limited exception for the lighting standard.

Chassis-cabs, manufactured on or after January 1, 1968, are required to meet all motor vehicle safety standards applicable to the principal end use intended by its manufacturer, except that where the chassis-cab is equipped with only part and not all of the items of lighting equipment referred to in Standard 108, it need not meet such standard. The chassis-cab is required to meet Standard No. 108 whenever all of the items of lighting equipment referred to in Standard 108 are installed on the chassis-cab. Frequently the manufacturer of the chassis-cab will install only a part of the lighting equipment because he either will not know what end use will be made of the vehicle or because the body or other structure to be added to the chassis-cab will be required to bear the balance of the lighting equipment referred to in Standard No. 108.

In order to provide a means of identifying the chassis-cab, its date of production, the Federal motor vehicle safety standards to which it conforms, and to insure that the person combining the chassis-cab with a body or other structure has adequate information with which to meet his statutory responsibilities, the regulation requires that chassis-cabs manufactured on or after

January 1, 1968, have a label affixed which supplies this information.

Concurrent with the issuance of this amendment the Federal Highway Administration has issued an interpretation (1) describing the responsibility under the National Traffic and Motor Vehicle Safety Act of 1966 of persons who combine bodies or other structures with chassis-cabs and sell the same. In brief, the interpretation requires that persons combining such a chassis-cab with a body or other like structure will be responsible for compliance with the lighting standard and for certification of such compliance under section 114 where such person sells the combined assemblage to another dealer. Additionally, under section 108(a)(1) the person combining the chassis-cab with a body or other like structure will be responsible for assuring that the completed assemblage complies with all applicable standards in effect on the date of manufacture of the chassis-cab, compliance with which has not been previously certified by the manufacturer of the chassis-cab and for assuring that compliance with standards previously met by the chassis-cab have not been adversely affected by reason of the addition of the body or like structure.

The interpretive ruling, however, does not require a truck, bus, or multipurpose vehicle consisting of a chassis-cab manufactured prior to

January 1, 1968, and a body or like structure manufactured at any time, to meet any standard. For further details interested persons are referred to the text of the ruling.

It is recognized that the problems associated with the multistage manufacture of trucks, buses, and multipurpose passenger vehicles are various and complex. . . . Requests for interpretations or modifications will be given appropriate consideration.

Because the Motor Vehicle Safety Standards issued pursuant to the National Traffic and Motor Vehicle Safety Act of 1966 become effective January 1, 1968, it is found for good cause that this regulation becomes effective upon issuance.

(1) F.R. Doc. 67-15175, in Notices Section, *infra*.

(Secs. 103, 119, National Traffic and Motor Vehicle Safety Act of 1966; 15 U.S.C. 1392, 1407; delegation of authority of Mar. 31, 1967 (32 F.R. 5606), Apr. 6, 1967 (32 F.R. 6495), July 27, 1967 (32 F.R. 11276), and Oct. 13, 1967 (32 F.R. 14277)).

Issued in Washington, D.C., on December 29, 1967.

Lowell K. Bridwell,  
Federal Highway Administrator

33 F.R. 18  
January 3, 1968

## PREAMBLE TO AMENDMENT TO PART 571

### Subpart A—General

#### “Mobile Structure Trailer”

A mobile home for purposes of the Federal motor vehicle safety standards is considered a “trailer” which is defined in 49 CFR 571.3(b) as a “motor vehicle with or without motive power, designed for carrying persons or property and for being drawn by another motor vehicle.” On August 15, 1968, a notice of request for comments was published (33 F.R. 11604) announcing that rulemaking was being considered “which would either exclude mobile homes, offices, classrooms, etc. from applicability of the Federal Motor Vehicle Safety Standards \* \* \* or classify them as a separate category of vehicle subject to regulation.” Comments were requested pertinent to these issues and Docket No. 26 was established to receive them.

The Federal Highway Administrator has evaluated these comments and is of the opinion that a mobile home towed on its own wheels is a “motor vehicle” within the meaning of section 102(3) of the National Traffic and Motor Vehicle Safety Act of 1966 (hereafter the Act), and is properly categorized as a trailer. However, differences between mobile homes and cargo and travel trailers are believed significant enough to warrant the creation of a subcategory of trailer covering mobile homes only. This new subcategory is designated “mobile structure trailer.”

The mobile home industry has asserted that its products are not “motor vehicles” in view of the infrequent use of the average mobile home upon the public streets, roads, and highways. Comments to Docket No. 26 state that the average mobile home is moved once every 40 months, that it spends less than 12 hours on the public roads in 18 to 20 years, and that it only spends 0.055

percent of its useful life on the highway. Thus, it is contended that mobile homes are not “manufactured primarily for use on the public streets, roads, and highways” and hence are not “motor vehicles” for purposes of the Act.

The undisputed fact is that mobile homes as their name implies, are constructed with a view towards over-the-road operations; their capability for travel on public highways is their principal advantage over fixed-site structures. Further, no one denies that mobile homes can present a significant safety hazard when they perform that function.

The Administrator views his conclusion that a mobile home towed on its own wheels is a motor vehicle as being consistent with the criteria expressed in the opinion on mini-bikes published October 3, 1969 (34 F.R. 15416). It is noteworthy that many States in significant ways accord mobile homes the same treatment as conventional motor vehicles. Registration, licensing, or other permission for use on the public roads is generally required. A number of jurisdictions have standards for mobile home lighting, braking, hitching, tire loading, and axle number and location.

Not only is a mobile home towed on its own wheels operationally capable of being used on public thoroughfares, it is almost exclusively so used in traveling from plant to dealer to owner site. Even assuming an infrequent move for the average mobile home, mobile homes as a class are found with increasing frequency on the public roads; industry production in 1967 was 240,000 units and the estimate for 1969 production was 400,000 units. The demand for low-cost housing makes the industry optimistic that there will be similar increases in years to come.

Clearly, when on the public highways, a mobile home towed on its own wheels will present a hazard if its tires, brakes, connection to the towing vehicle, and other factors affecting road-worthiness and traffic safety do not meet minimum standards. While some States, in recognition of this problem, have adopted their own safety standards, the Administrator believes that the decision published today may result in eventual uniformity of safety standards for mobile homes, and for that reason should be welcomed both by the motoring public and by the industry.

The current definition of trailer in § 571.3(b) is sufficient to encompass mobile homes. Yet, because of its size (10 to 14 feet in overall width), construction (a walled and roofed structure), and purpose (general off-road dwelling or commercial use) a mobile home is different from a conventional cargo or travel trailer. Separation by subclassification will allow exclusion of mobile homes from future rulemaking actions relating to trailers which may be inappropriate for mobile homes.

The sole standard presently applicable to trailers (No. 108-Lamps, Reflective Devices, and Associated Equipment) continues to be considered appropriate for mobile homes. In rec-

ognition of the limited road use of mobile homes, manufacturers have been advised for some time that compliance may be achieved by use of a lighting harness removable upon completion of transit.

The Administrator believes that mobile homes, offices, classrooms, etc. or modular portions thereof, should be termed mobile structures. In consideration of the foregoing, 49 CFR 571.3(b) is hereby amended effective immediately to add the following:

"Mobile structure trailer" means a trailer that has a roof and walls, is at least 10 feet wide, and can be used offroad for dwelling or commercial purposes.

Since this amendment merely establishes a subcategory of trailer without imposing any additional burden on any person I find that notice and public procedure are unnecessary and that good cause exists for making it effective on less than 30 days notice.

Issued on March 20, 1970.

F. C. Turner,  
Federal Highway Administrator.

**35 F.R. 5333**  
**March 31, 1970**

## PREAMBLE TO AMENDMENT TO PART 571

### Subpart A—General

#### "Fixed Collision Barrier"

##### (Docket No. 69-26)

On December 24, 1969, a proposal to amend § 571.3, *Definitions*, of Title 49, Code of Federal Regulations, by adding a definition for "Fixed collision barrier" was published in the *Federal Register* (34 F.R. 20212). The proposed definition was intended to replace present references in the motor vehicle safety standards to SAE Recommended Practice J850, "Barrier Collision Tests," and to be used in future standards containing performance requirements tested by impacting a vehicle into a stationary barrier.

The intent of the definition is to establish a firm basis upon which performance characteristics of a vehicle may be measured and the requirements of the standards enforced. Such a definition allows manufacturers to have flexibility in constructing barriers and testing their vehicles, since the focus is on the vehicle requirements rather than on the test equipment.

The core of the definition is that the barrier absorbs "no significant portion of the vehicle's kinetic energy". It should be remembered that this is not intended to be a description of an actual test barrier. It is a device used in various standards to establish required quantitative performance levels of a vehicle in a crash situation, and means simply that the vehicle must meet the requirement no matter how small an amount of energy is absorbed by the barrier.

So viewed, the comment that the use of the word "significant" injects an element of subjectivity into the definition is without merit. The question whether an amount of energy absorbed by a barrier is significant is to be answered by comparing it with the extent to which the vehicle exceeds the performance requirement. A vehicle that exceeds the require-

ments by 50 percent, for example, when impacted into a barrier that absorbs less than 1 percent of its kinetic energy, will probably meet the requirements in any case. Conversely, if a vehicle exceeds the requirements by an amount on the order of only 1 percent when tested, energy absorption of the same order will cast doubt on the validity of the test or the conformity of the vehicle. Thus, it would be inconsistent with the purposes of the definition to follow the suggestion that was made of allowing a specified percentage of energy absorption such as 1 percent. Furthermore, it would be necessary for the Bureau to test vehicles against a barrier that absorbed at least 1 percent of the energy in each case, in order to conclusively establish nonconformity. Since the precise amounts of energy absorbed in an impact are virtually impossible to establish, this would be a serious hindrance to enforcement of the standards.

It was suggested that the definition allow a plywood facing material to be used on a barrier. It is not necessary, however, to make such a specification, since no construction method whatever is prescribed, and manufacturers may use such facings or other materials as they see fit. Their responsibility is simply to insure that their vehicles will meet the performance requirements when they are impacted into a barrier whose energy absorption approaches zero.

One comment requested that the first paragraph be changed to make it clear that the dimensions of the barrier need not be such as to prevent the passage of parts of the vehicle that become separated during impact. Presumably the passage of separated parts mentioned by the commenter would not affect the measured per-

formance (steering wheel displacement, windshield retention, etc.). If it would not affect the performance, then the vehicle would perform in the same way when it impacted an "infinitely large" barrier, and such a provision would be unnecessary. If it would affect performance, then the provision would be inappropriate, since the point of the definition is to eliminate ambiguity by requiring the vehicle to meet the requirements upon impact with a barrier large enough to intercept the entire vehicle. The suggestion has therefore not been adopted.

A comment questioned the phrase "level vehicle attitude" in the second paragraph of the proposal. The intent of this paragraph was not to impose requirements as to vehicle attitude on a horizontal surface, but to specify a horizontal

approach surface large enough to allow complete damping of transient transverse or vertical vehicle motion. The paragraph has accordingly been reworded to specify that the approach surface be large enough for the vehicle to "attain a stable attitude" during the approach.

The third paragraph has been editorially reworded for clarification without change in its substance or intent.

Issued on July 8, 1970.

Douglas W. Toms,  
Director,  
National Highway Safety Bureau.

35 F.R. 11242

July 14, 1970

## PREAMBLE TO AMENDMENT TO PART 571

## Subpart A—General

## “Definitions”

The purpose of this notice is to amend Subpart A, General, of Part 571, Federal Motor Vehicle Safety Standards, in Title 49, Code of Federal Regulations, by adding certain definitions and an explanatory section with respect to drafting usage in the standards and regulations issued under the National Traffic and Motor Vehicle Safety Act.

1. A problem that arises frequently in the drafting and interpretation of standards is expression of the concept that a vehicle or item of equipment must meet specified requirements within a range of values, or in connection with all the items in a set, not simultaneously, but at whatever point within the range or with whatever item in the set the Administration selects for testing. Normal English usage describes this concept by use of the word “any,” as in the following examples: “The vehicle must meet the requirements of S4.1 when tested at any point between 18 and 22 inches above the ground.” “Each tire shall be capable of meeting the requirements of this standard when mounted on any rim specified by the manufacturer as suitable for use with that tire.”

The interpretive difficulty arises because, although the requirements of the standards are drafted as descriptions of the limits within which the Administration will test the vehicles and equipment to which the standards apply, some members of the public fail to recognize this, and tend to view the standards (erroneously) as descriptions of the tests that manufacturers must perform. Thus, in the above ex-

amples, persons may mistakenly consider the requirement as requiring only that the vehicle must meet the requirements at some one point between 18 and 22 inches from the ground, or that a tire need only meet the requirements when mounted on a particular one of the rims recommended by the manufacturer. To correct any such misconceptions, and to simplify the drafting and interpretation of standards and regulations, an explanatory section is hereby added to the “General” subpart of Part 571.

2. To simplify the drafting and organization of standards and regulations, definitions are hereby added to the list in 49 CFR 571.3 for the terms “longitudinal” or “longitudinally,” “gross vehicle weight rating” or “GVWR,” “gross axle weight rating” or “GAWR,” “gross combination weight rating” or “GCWR,” and “unloaded vehicle weight.”

Since these amendments are clarifying and interpretative in nature, notice and public procedure thereon are unnecessary, and they are effective upon publication in the *Federal Register* (2-5-71).

In consideration of the foregoing, Subpart A, General, of Part 571, Federal Motor Vehicle Safety Standards, in Title 49, Code of Federal Regulations, is amended. . . .

Issued on February 2, 1971.

Douglas W. Toms,  
Acting Administrator.

36 F.R. 2511  
February 5, 1971





**PREAMBLE TO AMENDMENT TO PART 571—FEDERAL MOTOR VEHICLE  
SAFETY STANDARDS  
(Docket No. 71-8; Notice 2)**

The purpose of this notice is to amend section 571.3(b) to add a definition of "firefighting vehicle," and to add new section 571.8 to provide for delayed effective dates of future standards to which firefighting vehicles must conform.

The notice of proposed amendment upon which this amendment is based was published in the *Federal Register* on April 16, 1971, (36 F.R. 7259). This amendment is responsive to the potential problems of manufacturers of firefighting vehicles that may be caused if Federal motor vehicle safety standards are issued after purchase contracts are signed, to be effective before the manufacture of the vehicles in question is completed. As noted in the prior notice, many of these vehicles are custom-built to the buyer's specifications and require up to 18 months or more to complete after the contract is signed, and the buyer, typically a unit of municipal government, is often not in a position to renegotiate the contract and appropriate additional funds. The amendment specifies that the effective date for any standard or amendment of a standard to which a firefighting vehicle must conform shall

be 2 years after the date that notice of such standard or amendment is published in the *Federal Register*, or the effective date specified in the notice, whichever is later, unless such standard or amendment otherwise specifically provides with respect to firefighting vehicles. This will assure manufacturers and buyers that the vehicles for which contracts are signed need only conform to standards on which the final rules have been issued at the time the contract is signed, as long as the vehicles are completed within 2 years of the signing date.

No objections to the proposal were received.

In consideration of the foregoing, 49 CFR 571 is amended . . . .

Effective date: September 1, 1971.

Issued on July 21, 1971.

Douglas W. Toms  
Acting Administrator

**36 F.R. 13926  
July 28, 1971**



## PREAMBLE TO AMENDMENT TO PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

This notice amends the definition of "Gross axle weight rating" to reflect more clearly the intended meaning of the phrase.

Gross axle weight rating is defined in 49 CFR 571.3 as follows:

"Gross axle weight rating" or "GAWR: means the value specified by the vehicle manufacturer as the loaded weight on a single axle measured at the tire-ground interfaces.

GAWR, as it has been interpreted by this agency in response to questions from interested persons, is intended to reflect the load carrying capacity of the axle system, and not necessarily the actual load that they may be imposed on an axle system by a vehicle in use. The capacity should normally be at least equal to the imposed load, of course, but it may exceed the imposed load to any extent desired by the vehicle manufacturer.

In order to express this intent more clearly, the definition of "Gross axle weight rating" in 49 CFR § 571.3, Definitions, is hereby amended.

*Effective date:* February 12, 1972.

Since this amendment is interpretative in nature, and reflects current understanding and practice, it is found for good cause that notice and public procedure thereon are unnecessary, and that an immediate effective date is in the public interest.

This amendment is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act, 15 U.S.C. 1392, 1407, and the delegation of authority at 49 CFR 1.51.

Issued on February 8, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 3185**  
**February 12, 1972**



**PREAMBLE TO AMENDMENT TO PART 571****Subpart A—General****"Definitions"**

This notice extends the applicability of the definitions used in the Federal Motor Vehicle Safety Standards to other regulations contained in Chapter V of Title 49, Code of Federal Regulations, and deletes the definitions of "Gross axle weight rating" and "Gross vehicle weight rating" from the regulations governing vehicles manufactured in two or more stages.

49 CFR 571.3(b) contains the definitions used in the Federal Motor Vehicle Safety Standards. Some of the regulations other than standards contain their own definition sections defining terms unique to the regulation, and otherwise incorporating by reference the definitions of Part 571. An example of this is the definition section in the Certification Regulation, 49 CFR 567.3: "All terms that are defined in the Act and the rules and standards issued under its authority are used as defined therein." However, there is no reverse applicability of 49 CFR 571.3(b), which applies only to terms "as used in this part." One result has been that duplicate definitions appear in certain regulations, specifically, the identical definitions of "Gross axle weight rating" and "Gross vehicle weight rating" found in both Part 571 and the regulation on Vehicles Manufactured in Two or More Stages, Part 568. To prevent unnecessary duplication and the possibility of

confusion in the future, the Administration has determined that the definitions used in Part 571 should apply to all regulations in Chapter V, and also that Part 568 should be amended by deleting the definitions of "Gross axle weight rating" and "Gross vehicle weight rating." In consideration of the foregoing 49 CFR 571.3(b) is amended...

*Effective date:* June 1, 1972. Since this amendment is administrative and interpretive in nature and imposes no additional burden upon any person, notice and public procedure thereon is unnecessary and it may be made effective in less than 30 days after publication in the *Federal Register*.

This notice is issued under the authority of section 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407), and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administration 49 CFR 1.51.

Issued on May 9, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 10938**  
**June 1, 1972**



## **PREAMBLE TO AMENDMENT TO PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

### **Subpart A—General**

This notice deletes the definition of "Occupant" from the general definitions applicable to the Federal motor vehicle standards.

At present, "Occupant" is defined in § 571.3 Definitions, (applicable to all standards) as "a person or manikin seated in the vehicle, and, unless otherwise specified in an individual standard, having the dimensions and weight of the 95th percentile adult male." However, where the word "occupant" is used in this chapter, the weight has generally been specified if it is a necessary part of the requirement. Thus, the definition is superfluous. Moreover, in instances where the use of a weight other than that of a 95th percentile male is assumed, the definition could be misleading.

Since this amendment is clarifying and interpretative in nature, and does not affect any requirements, notice and public procedure thereon are found to be unnecessary.

Accordingly, 49 CFR § 571.3(b) is hereby amended by deleting the definition of "occupant".

Effective date: April 1, 1973.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on February 23, 1973.

Douglas W. Toms  
Administrator

**38 F.R. 5636**  
**March 2, 1973**





## PREAMBLE TO AMENDMENT TO PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

## Subpart A—General

This notice amends the Federal Motor Vehicle Safety Standards, 49 CFR Part 571, by removing the general provision excepting motor vehicles of 1,000 pounds or less curb weight other than trailers and motorcycles (hereafter referred to as "lightweight vehicles") from the applicability of the safety standards.

The NHTSA published a notice of proposed rule making on August 16, 1972 (37 F.R. 16553) proposing that the motor vehicle safety standards apply to all vehicles regardless of weight. Comments generally favored the proposal. Those who opposed the proposal expressed concern that standards compliance would hinder development of small urban vehicles. It was recommended that different performance requirements be adopted for lightweight passenger cars in some areas of the standards, such as those related to structural crashworthiness. One commenter requested that exemption not be discontinued, but be made available for vehicles with a curb weight of up to 1500 pounds.

The NHTSA has determined that the general exception of lightweight vehicles from conformity with the standards can no longer be justified, and is hereby amending 49 CFR § 571.7(a) to remove it. In so doing, it is mindful of the potential effect of this action upon the development of small, economical vehicles. As it observed in the notice:

"It remains true that vehicles in this weight class have inherent disadvantages in meeting standards requiring, for example, structural strength or considerable crush distance. Many other important standards, on the other hand, such as those on lighting, braking, and glazing, should be attainable by lightweight vehicles virtually as easily as by heavier ones. It thus

appears in the public interest to consider the needs and problems of lightweight vehicles on a standard-by-standard basis (as is presently done in the case of heavy vehicles, which receive differential treatment in several standards), rather than by an across-the-board exception."

A manufacturer has the option of petitioning for amendment of any standard it feels is impracticable or inappropriate for lightweight vehicles. Alternatively, it may be eligible to petition for temporary exemption from one or more standards upon one of the bases provided in Section 123 of the National Traffic and Motor Vehicle Safety Act (Pub. L. 92-548).

An additional comment concerned the inequity in treatment between three- and four-wheeled vehicles, the former categorized as "motorcycles" for purposes of the standards and required to comply with fewer standards. By a separate notice published today (38 F.R. 12818) the NHTSA is seeking to correct this inequity by proposing a redefinition of "motorcycle" which would exclude most three-wheeled vehicles.

In consideration of the foregoing, 49 CFR 571.7(a) is revised. . . .

*Effective date:* January 1, 1974.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 38 F.R. 12147).

Issued on May 10, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

**38 F.R. 12808**  
**May 16, 1973**



# PREAMBLE TO AMENDMENT TO PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

## Subpart A—General

(Docket No. 73-12; Notice 2)

This notice amends 49 CFR 571.3(b), Definitions, of the Federal motor vehicle safety standards, by revising the definition of "motorcycle".

The NHTSA proposed in the *Federal Register* on May 16, 1973 (38 F.R. 12818) that a "motorcycle" be defined as a "two-wheeled motor vehicle with motive power, or a three-wheeled motor vehicle with motive power and without a full or partial passenger enclosure".

Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all comments received in response to the notice, insofar as they relate to matters within its scope.

The issue raised most frequently in the comments was the concern that the addition of a sidecar to a two-wheeled motorcycle would create a combination vehicle not classifiable as a "motorcycle". The NHTSA considers a sidecar to be an item of motor vehicle equipment which, when added to a two-wheeled vehicle, does not change that vehicle's original classification as a "motorcycle".

As the agency had anticipated, comments were submitted by manufacturers and potential manufacturers of three-wheeled vehicles that would be excluded from categorization as "motorcycles". These commenters generally objected to the imposition of passenger car and truck standards on their vehicles, on the grounds that these are inappropriate for low-speed lightweight vehicles. One manufacturer argued that it could not meet seating and restraint requirements. Others suggested that a special category be established for three-wheelers. To one commenter, the options of petitioning for amendment of "inappropriate" standards, or for temporary

exemption from "appropriate" ones pending compliance did not appear to offer an adequate solution, arguing that it represented "a lengthy procedure with doubtful outcome".

Only one petition has been received for amendment of standards applicable to lightweight or three-wheeled vehicles, and pending its resolution no separate categories or special requirements for these vehicles have been established. Under the certification scheme imposed by the National Traffic and Motor Vehicle Safety Act, a manufacturer has the responsibility of determining whether his vehicle meets the Federal standards, and petitioning if an appropriate change appears necessary. The NHTSA believes that the goals of motor vehicle safety in this area are more likely to be realized by consideration of problems with the standards as they are raised by individual manufacturers, than by attempting to establish a comprehensive regulatory scheme for lightweight vehicles on the basis of the scanty data presently available.

The definition that NHTSA proposed was opposed on substantive grounds as well. Several commenters said the phrase "partial passenger enclosure" was ambiguous and would create problems of interpretation. It was suggested that reference be made to such characteristics of two-wheeled motorcycles as saddle seating and handlebars. The agency has decided that these comments have merit, and that a definition of "motorcycle" should emphasize features of three-wheeled vehicles to be included in the definition, rather than those to be excluded. Accordingly the definition is being adopted that three-wheeled motorcycles are those "utilizing a handlebar for steering and having a seat that is straddled by the driver".

Effective: September 1, 1974

The NHTSA considers the adoption of this amendment dispositive of recent petitions of the Motorcycle Industry Council and Cushman Motors for a redefinition of "motorcycle", and to the extent that those requests differ from the definition adopted today the petitions are denied.

In consideration of the foregoing the definition of "Motorcycle" in 49 CFR 571.3(b) is revised . . . .

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*Effective date:* September 1, 1974.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51)

Issued on November 19, 1973.

James B. Gregory  
Administrator

**38 F.R. 32580**  
**November 27, 1973**

# PREAMBLE TO AMENDMENT TO PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

## Subpart A—General

(Docket No. 73-12; Notice 3)

This notice responds to petitions for reconsideration of the recent redefinition of "motorcycle" (38 F.R. 32580), and amends 49 CFR 571.3(b), Definitions, by revoking that redefinition. In a notice issued today, the NHTSA has proposed an amendment to 49 CFR 571.3(b) that would redefine the vehicle category "motorcycle."

In a notice published on May 16, 1973, (38 F.R. 12818) the NHTSA proposed that a "motorcycle" be defined as "a two-wheeled motor vehicle with motive power, or a three-wheeled motor vehicle with motive power and without a full or partial passenger enclosure." On the basis of comments received, on November 27, 1973, (38 F.R. 32580) 49 CFR 571.3(b) was amended, effective September 1, 1974, to define "motorcycle" as a "two-wheeled motor vehicle with motive power, a handlebar for steering, and a seat that is straddled by the driver." This definition is being revoked in light of the agency's decision to propose a new definition, leaving the original definition in force pending further rulemaking action.

Petitions for reconsideration were submitted by White Motor Corporation, EVI, Inc., Otis Elevator, and Cushman Motors, all of whom objected to the revised definition. Cushman Motors, Otis Elevator, and EVI, Inc. argued that the revised definition was inappropriate in that no safety need had been demonstrated to warrant its adoption. The NHTSA does not agree with this contention. Safety demands that the existing standards apply to vehicle types which have similar characteristics and end uses. For instance, vehicles that are used as passenger cars and whose configurations display basic passenger car characteristics should, in the interest of safety, be subject to passenger car standards.

Cushman Motors and Otis Elevator asserted that the effect of the revised definition, subjecting their three-wheeled vehicles to passenger car or truck standards, would be to force their vehicles out of production since it would be impossible for them to comply with the applicable safety standards. This issue was discussed in a notice published May 16, 1973, (38 F.R. 12808) removing the provision excepting motor vehicles of 1,000 pounds or less curb weight from the applicability of the safety standards. The NHTSA explained in that notice:

A manufacturer has the option of petitioning for amendment of any standard it feels is impracticable or inappropriate for lightweight vehicles. Alternatively, it may be eligible to petition for temporary exemption from one or more standards upon one of the bases provided in section 123 of the National Traffic and Motor Vehicle Safety Act (Public Law 92-548).

Petitioners' most substantial objection was that the definition excluded certain vehicles whose overall configurations are closer to those of motorcycles than of passenger cars or trucks, while including others for which regulation as motorcycles appears inappropriate. Petitioners argued that the presence of a steering wheel and a bench seat would subject a lightweight, unenclosed three-wheeled vehicle to passenger car or truck requirements, regardless of other characteristics which might render it more suited to regulation as a motorcycle. They contended that the definition also had the effect of allowing fully enclosed vehicles, if equipped with handlebars and a straddle seat, to meet only the requirements applicable to motorcycles regardless of their overall similarity to a passenger car or truck.

The NHTSA has concluded that some of these arguments have merit. Three-wheeled vehicles, though low in volume of production, span a variety of types that range from vehicles virtually identical to motorcycles forward of their rear axles to those that have every characteristic of small passenger cars except for the number of wheels on the ground. The most reasonable and appropriate dividing line appears to be one based on a vehicle feature crucial to the application of conventional passenger car or truck standards—an enclosed passenger compartment. The petition from White Motor Corporation suggested a definition that would divide motorcycles from other vehicle types on the basis of a passenger enclosure above the level of the handlebars. The NHTSA has concluded that the suggestion is meritorious, and it forms the basis for the proposed redefinition published today.

Several commenters objected to the amendment on grounds that it differed from the proposal (38 F.R. 12818). In light of the fact that the

redefinition is being revoked on the merits and a new definition is proposed, the NHTSA considers that issue moot.

In light of the foregoing, the definition of "motorcycle" in 49 CFR 571.3(b), *Definitions*, published November 27, 1973, (38 F.R. 32580), to be effective September 1, 1974, is hereby deleted.

Effective date: April 30, 1974. Since this action revokes an amendment that was not yet effective, it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on April 24, 1974.

James B. Gregory  
Administrator

**39 F.R. 15039**  
**April 30, 1974**

**PREAMBLE TO AMENDMENT TO PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS****Subpart A—General****(Docket No. 74-27; Notice 1)**

The purpose of this notice is to amend 49 CFR Part 571 by deleting § 571.11, Equivalent Demonstration Procedure, which refers to the substitution of test procedures by manufacturers for those prescribed in the safety standards.

Section 571.11, which was a part of the original procedural rules, provides that an "approved equivalent" demonstration procedure may be substituted for the testing procedure specified in a particular standard. The implication of this provision is that the manufacturer must obtain from the NHTSA approval of any testing procedures he intends to utilize that deviate from the procedures prescribed in the standards. This agency's interpretations of the National Traffic and Motor Vehicle Safety Act since the promulgation of § 571.11, however, are at variance with the requirement implied by that section.

The safety standards establish required performance levels for motor vehicles and motor vehicle equipment. The test procedures in the safety standards are simply objective ways of phrasing the performance requirements. Generally, they represent the procedures that will be followed by the agency in its compliance testing. The manufacturer is not legally obligated to follow these test procedures when determining

the compliance of his products for the purposes of certification. The legal requirement is that he exercise due care in assuring himself that his product is capable of meeting the performance requirements of applicable standards when tested in the manner prescribed. He may do this by whatever means he determines to be reliable and necessary.

Accordingly, 49 CFR Part 571 is amended by deleting § 571.11, Equivalent Demonstration Procedure.

Effective date: August 7, 1974. This amendment is clarifying and interpretative in nature, and it is therefore found for good cause shown that notice and public procedure are unnecessary, and that an immediate effective date is in the public interest.

(Sec. 103, 119 Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on August 2, 1974.

James B. Gregory  
Administrator

**39 F.R. 28437**  
**August 7, 1974**





## PREAMBLE TO AMENDMENT TO PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

(Docket No. 75-9; Notice 2)

This notice amends 49 CFR 571.7, *Applicability*, by the addition of a new paragraph to specify the conditions under which a truck assembled by combining major new components with some used components will be considered used for the purpose of the motor vehicle safety standards, associated regulations, and the National Traffic and Motor Vehicle Safety Act.

The NHTSA proposed a modification of its existing interpretation of what constitutes the manufacture of a new motor vehicle when used components from an existing vehicle are involved (40 F.R. 19485, May 5, 1975). Up to this time, the NHTSA has considered that the addition of new components (such as a truck body) to the chassis of a used vehicle does not constitute the manufacture of a new vehicle, but that the addition of used components to a new chassis which has never been certified in a vehicle constitutes the manufacture of a new vehicle, subject to the safety standards in effect for that vehicle class on the date of manufacture. This criterion has been relied on in the area of chassis-cab multi-stage manufacture.

Two truck manufacturers, the American Trucking Associations and the National Automobile Dealers Association, requested reconsideration of this criterion, because the high value of some components of a chassis makes their reuse feasible although the entire chassis may not be reusable. They stressed the savings to an owner in combining a "glider kit" (typically a cab, frame rails, and front suspension) and the used power train of a wrecked or badly worn vehicle instead of purchasing a complete new vehicle from a truck manufacturer. Standard No. 121, *Air Brake Systems*, has heightened the importance of the question of what constitutes a new vehicle, since

bringing vehicles with pre-121 axles into conformity with the standard appears to be economically impracticable.

The NHTSA proposed a statement of what constitutes manufacture of a vehicle in these cases which agreed with the suggestions of the two petitioning manufacturers, International Harvester and White Motor Corporation. The agency considered it important that the retention of a minimum number of valuable used components be required as a justification in each case, and that retention of the identity of the used vehicle, with respect to model year and identification number, be required as evidence that the reassembly is a bona fide salvage operation, to avoid creating any undue economic incentives for evasion of Standard No. 121.

Manufacturers and users supported the clarification that permits the continued use of glider kits in combination with pre-121 rear axles, but International Harvester, Mack, PACCAR, Transpac, and the State of California objected to the second criterion that vehicles be identified as the old vehicle. The comments indicate that requiring the identity of the old vehicle to continue in the rebuilt vehicle would have real and unintended disadvantages in the area of vehicle registration by the States. As proposed by the NHTSA, the registration would reflect a vehicle identification number that would not appear on the new vehicle frame or in the new vehicle cab, with resulting difficulty in verifying the true identity of the vehicle. The external identification on the cab would, in many cases, also disagree with the vehicle identification documents. The NHTSA agrees that State registration practices to avoid this confusion should be supported

as long as the practice does not encourage the salvage of old vehicle components in order to avoid safety standards. Therefore, the NHTSA issues the provision in a form which includes only the requirement for at least two used drive train components.

Rockwell International cautioned the NHTSA against a decision that would encourage the reuse of unsafe components on the highway. The NHTSA always considers the possibility its regulations might encourage continued use of vehicles on the highway after they would normally be replaced. As in other cases, the NHTSA will monitor the effect of its decision on glider kits to ensure that their use without requiring compliance with all applicable standards does not result in a pattern of conscious avoidance of Standard No. 121 or other standards. In the event the agency should discover evidence of such abuse, it will move decisively to appropriately revise the new statement of applicability.

Oshkosh Truck Corporation and Mack Trucks, Inc., both suggested that the scope of the proposal be modified to broaden its coverage. Oshkosh concluded that because a new cab was mentioned, the provision would prohibit the use of used cabs in vehicle assembly operations. Mack believed that the term "glider kits" would better describe the rebuilding operations being described.

The NHTSA would like to make clear to Oshkosh and others that the proposed paragraph (e) is not intended to regulate all truck rebuilding operations, but only those in which so many major new components are utilized (such as a glider kit) that the vehicle is in many respects a newly-manufactured vehicle. This provision is intended to distinguish the legitimate rebuilding operation in which many new vehicle components are used from the typical assembly-line production of new vehicles. Oshkosh and other manufacturers may rebuild trucks with used components without falling under § 571.7(e).

In consideration of the foregoing, a new paragraph (e) is added to 49 CFR 571.7, *Applicability* . . . .

*Effective date:* October 22, 1975. Because this amendment has the effect of relaxing a requirement for the compliance of vehicles to applicable motor vehicle safety standards, it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51).

Issued on October 16, 1975.

Gene G. Mannella  
Acting Administrator

**40 F.R. 49340**  
**October 22, 1975**

## PREAMBLE TO AMENDMENT TO PART 571— FEDERAL MOTOR VEHICLE SAFETY STANDARDS

(Docket No. 75-24; Notice 2)

This notice amends the definition of "school bus" that appears in 49 CFR 571.3, to conform to the mandate of the Motor Vehicle and School-bus Safety Amendments of 1974 (The Act), Pub. L. 93-492, by expanding the present definition used by the NHTSA in establishing safety requirements.

The NHTSA's present definition of "school bus" (49 CFR 571.3) is based on the design of the vehicle:

"School bus" means a bus designed primarily to carry children to and from school, but not including buses operated by common carriers in urban transportation of school children.

The Act included a definition of "school bus" based on its usage for transporting students, instead of its design:

(14) "schoolbus" means a passenger motor vehicle which is designed to carry more than 10 passengers in addition to the driver, and which the Secretary determines is likely to be significantly used for the purpose of transporting primary, pre-primary, or secondary school students to or from such schools or events related to such schools;

The legislative history of the Act specifically emphasizes Congress' view that the existing definition based on vehicle design is too narrow and should be expanded to include vehicles likely to be used for school student transportation. H.R. Rep. No. 93-1191, 93rd Cong., 2d Session 42 (1974):

Your Committee decided that safety regulation should reach the wide variety of passenger motor vehicles which are actually and significantly used to transport students, not merely those which are primarily designed for this purpose.

The Congressional definition directs the NHTSA (by reference to a Secretarial determination) to establish a regulatory definition that encompasses a described category of bus used for student transportation. The NHTSA subsequently proposed a definition that would accomplish the Congressional intent within the regulatory and enforcement framework of the Act (40 FR 40854, September 4, 1975):

"School bus" means a bus which is equipped to carry more than 10 passengers in addition to the driver and which is sold, or introduced, or delivered for introduction in interstate commerce, for purposes that include carrying students to and from school or related events, but does not include buses designed and sold for operation as a common carrier in urban transportation.

Comments were received from manufacturers and users of school buses (and their associations), the States of Wisconsin and Montana, the California Department of Highway Patrol (CHP), the Vehicle Equipment Safety Commission (VESC), and Mr. George Chambers. The major issue in these comments was the degree to which the proposed definition conformed to Congressional intent. The Motor Vehicle Manufacturers Association (MVMA), Chrysler Corporation, International Harvester (IH), General Motors, and the State of Montana argued that the Congressional expectation of regulating most student-carrying 11-or-more-passenger motor vehicles on the basis of anticipated use could not be reasonably effectuated under the authority of the Act.

The Act provides that "no person shall . . . manufacture for sale, sell, offer for sale, or introduce or deliver for introduction in interstate commerce . . . any motor vehicle . . . unless it is

in conformity with [applicable] standard[s] . . ." (15 U.S.C. § 1397(a)(1)(A)). This provision authorizes placement of responsibility on a seller for compliance with standards that apply to school buses. The Congressional definition clearly directs that the likely use of the vehicle as well as its design be considered in the determination of its status as a school bus. The NHTSA remains convinced that, of all the persons in the chain of distribution who are subject to the Act, the seller is most likely to have knowledge of the likely use of the vehicle.

In essence, the NHTSA proposed that "school bus" be defined as a bus that is sold for purposes that include student transportation. Thus the determination of vehicle classification, in close cases, can be made on the basis of the sales transaction. It would not, however, be based solely on an event that occurs after sale, such as the actual use of the vehicle. The MVMA and others assumed from a reference in the proposal to the "intent" of either party that the seller would be held responsible for the unexpressed intent of the purchaser to use the vehicle for student transportation, although this purpose was unknown to the seller. This is not the case. The seller is not held responsible for more than its knowledge of the purpose of the sale. If the seller has reason to believe that a vehicle will be used for student transportation, it can easily ascertain intended use by requesting a written statement of purpose from the purchaser.

The MVMA suggested that "school bus" be defined as a bus that is equipped for the purpose of carrying primary, pre-primary, or secondary school students to or from schools or related events. This definition falls short of the Congressional mandate to cover vehicles that are "likely to be significantly used for the purpose of transporting . . . students". For example, all buses purchased for more than a single purpose (e.g., student and faculty transportation) would be excluded from the definition and from coverage by the standards. Also the criterion "equipped for the purpose" of student transportation does not make clear what equipment (e.g., warning lights, school bus seating) would be determinative of the purpose. General Motors' suggested "designed or equipped for the pur-

pose" is also vague as to the meaning of what element of design or equipment would be determinative of the vehicle's classification.

General Motors and Wayne Corporation implied that it is unreasonable to hold manufacturers responsible for what happens to a vehicle in the hands of dealers. There is no intent to do this, however. A manufacturer or other entity in the chain of distribution is only to be held responsible for what it knows. If a vehicle is originally produced as a non-school vehicle (a van-type multipurpose passenger vehicle (MPV), for example), and subsequently is sold by a dealer for school transportation purposes, it is the dealer who will be held for any non-compliance with school bus standards, not the manufacturer. Actually, final-stage manufacturers (in some cases dealers) have always undertaken modification of trucks and MPV's that result in different requirements from the factory installation. This responsibility has not created an impossible burden on the original manufacturer.

Wayne suggested that "school bus" be defined to mean only those vehicles that a user or regulatory authority designates as a school bus by use of exterior identification such as a label or distinctive lighting or color. This criterion, like MVMA's, falls short of Congress' evident interest in any vehicle likely to be significantly used for student transportation. Evidently vehicles operated by private schools are not, in many cases, given the exterior identification markings suggested by Wayne.

In conforming its proposal to the Congressional definition, the NHTSA limited "school bus" to a bus that carries at least 11 passengers in addition to the driver. Based on comments received from Wayne and CHP, it appears that the definition should be expanded slightly to include buses that carry 10 passengers. This eliminates a departure from previous NHTSA vehicle categorization that classifies vehicles with 10 or fewer occupant seating positions as MPV's or passenger cars and vehicles with 11 or more seating positions as buses. To adhere strictly to the Congressional definition would leave the small group of vehicles that transport 10 students without coverage under either the school bus, the MPV, or the passenger car standards.

Some commenters incorrectly assumed that the Congressional definition of "school bus" established an outer limit on the NHTSA's authority to regulate vehicles that transport students as such. To the contrary, the Congressional definition is a direction to the NHTSA that the new standards in this area must not be applied to a narrower category of vehicle. As long as that direction of Congress is satisfied, the NHTSA is, however, authorized to decide the scope of its standards, and in this case to expand on the Congressional definition to implement the mandate effectively.

In response to Mr. George Chambers' concern that the NHTSA definition is too broad, the NHTSA considers it reasonable to regulate all buses significantly used for transportation of students to and from all schools and related events, not just pre-primary, primary, and secondary schools. The NHTSA concludes that its rewording of the Act's "schools or events related to such schools" as "schools or related events" does not contradict Congressional direction.

Wayne and the National School Transportation Association (NSTA) suggested that buses used in urban transportation must be included in the definition of "school bus" because they are used in some circumstances to transport students to and from school. It is true that the phrase "likely to be significantly used for the purpose of transporting . . . students to or from . . . schools" could arguably be considered to cover transit buses on regular common-carrier routes. Such buses have been explicitly excluded from the NHTSA's definition for several years, however. In light of the major standard-setting activity mandated by Congress in the Act, it is unlikely that such a broad change of regulatory direction would be contemplated by Congress without explicit discussion at some point in the legislative history. The legislative history contains no indication of such a Congressional intent, and this agency therefore concludes that such coverage was not intended. The boundaries of coverage are explicitly left by the statute to agency determination. In light of the purposes for which the school bus standards are being developed, their expected costs and benefits, and the modes of use of transit buses, the NHTSA has concluded that the continued exclusion of

buses designed and sold for operation as common carriers in urban transportation is in the public interest.

Mr. George Chambers suggested that limiting the exclusion of transit-type buses to those in urban areas appeared to be illogical. The NHTSA has satisfactorily used this limit for several years, and no problems have developed. If difficulties should appear in the future, further modification of the definition will be considered.

The MVMA and General Motors suggested that the existing description of transit-type buses ("operated" as a common carrier) more simply describes the excluded class than NHTSA's proposed language ("designed and sold"). By limiting the exclusion to buses designed and sold for use as common carriers, the definition conforms to the areas (design and sale) over which the agency has jurisdiction under the statute.

Wayne and the States of Wisconsin and Montana questioned the wisdom of limiting the definition to buses (10 passengers or more), when some school vehicles for handicapped students are equipped for fewer than 10 passengers and would not be required to meet the standards. The NHTSA has carefully considered extension of school bus standards to vehicles other than buses, but concludes that the standards in question have been developed for vehicles with bus seating and loading characteristics. For example, the proposed bus passenger seating and crash protection standard is calculated for cab-chassis and van-type vehicles with seating for 10 passengers or more.

The VESC asked that only buses primarily used for transportation of students be considered school buses, so that buses used primarily for other purposes would not be able to display the distinctive school bus markings or be used to transport students after their systems had deteriorated in some more abusive use. The agency views the Congressional emphasis on "significant" use of a vehicle as a direction to extend the school bus standards to all buses that transport students, whether or not it is their primary purpose. For the same reason, the NHTSA does not agree with Blue Bird Body Company's opinion that "activity" buses should be excluded from the Congressionally-mandated standards.

It appears that Congress intended all the school bus standards to apply to buses that carry students to or from events related to their schools.

The definition basically relies on the sales transaction for determination of a vehicle's status. In some cases vehicles are leased for the purpose of transporting students, and it is for this reason that the definition refers to "introduction in interstate commerce" as well as sale. The description of this "no-sale" event has been simplified somewhat in response to the comments.

The California Department of Highway Patrol asked whether motor vehicles with a capacity of less than 11 occupants (12 as proposed) that transport students are preempted from regulation by the States as school buses. The answer is no. Since motor vehicles with a capacity of fewer than 11 occupants are not regulated as school buses by the NHTSA, State school bus regulations, to the extent that they apply to such smaller vehicles, would not be preempted by the NHTSA school bus standards. For instance, brake systems of MPV's are not regulated by the NHTSA and may be governed by State regulations. Of course, State regulations may not conflict with standards applicable to these vehicles as passenger cars or MPV's.

The State of Montana believed that the definitions of Type I and Type II school buses would be affected by this redefinition. In fact neither the present definition nor the new definition conflict with State or Highway Safety Standard definitions (such as the Pupil Transportation Standard No. 17) that regulate the operation of the vehicle, so long as those operational regulations do not dictate the design and performance of the vehicle to the degree that it is subject to a safety standard.

In consideration of the foregoing, the definition of "school bus" in Title 49 of the Code of Federal Regulations (49 CFR § 571.3) is amended . . . .

*Effective date:* October 27, 1976.

(Sec. 102, 103, 119, Pub. L. 89-563, 80 Stat. 718, as amended by Pub. L. 93-492, 88 Stat. 1470 (15 U.S.C. 1391, 1392, 1407); delegation of authority at 49 CFR 1.50)

Issued on December 23, 1975.

James B. Gregory  
Administrator

**December 31, 1975**  
**40 F.R. 60033**

## PREAMBLE TO AMENDMENT TO PART 571—FEDERAL

## MOTOR VEHICLE SAFETY STANDARDS

IDocket No. 75-9; Notice 4)

This notice amends section 571.7 of Title 49 of the Code of Federal Regulations by adding a new paragraph that specifies the conditions under which a trailer assembled from new and used components will be considered used for the purposes of the motor vehicle safety standards, associated regulations, and the National Traffic and Motor Vehicle Safety Act.

The National Highway Traffic Safety Administration (NHTSA) proposed the new paragraph (40 F.R. 58154, December 15, 1975) in response to petitions from two trailer manufacturers to modify the existing NHTSA opinion of what constitutes the "manufacture" of a motor vehicle under the National Traffic and Motor Vehicle Safety Act (the Act) (15 U.S.C. § 1381, et seq.). The Act authorizes the issuance of motor vehicle safety standards and prohibits, among other things, the manufacture of a motor vehicle on or after the date any applicable standard takes effect unless the vehicle conforms to the standard, and is so certified (15 U.S.C. §§ 1397 (a) (1) (A), 1403). Until now, the agency generally has distinguished "manufacture" from rebuilding by requiring retention of at least the chassis to constitute a rebuilding operation. In the case of trailers, the chassis consists of the running gear and main frame members.

A running gear assembly is the axle or axles, wheels, suspension and related components that support the frame and upper portions of the trailer. Since implementation of Standard No. 121, *Air Brake Systems* (which applies to the manufacture of most air-braked trailers), it has been impractical to certify a trailer manufactured from new components and a used running gear, because the used running gear is not designed to meet the requirements of the standard. Because many trailers do not have distinct "main

frame members," rebuilding without recertification also has been difficult. Recently the NHTSA eased the requirements for rebuilding trucks by an amendment that permits the use of "glider kits" in truck assembly without recertification under most circumstances.

With a view to further reducing the costs of Standard No. 121 without compromising safety, the agency tentatively concluded that reuse of trailer running gear assemblies was justified to the degree that they were reutilized in the past. To safeguard against evasion of the safety standards, the agency proposed an 8-year limit on the use of running gear assemblies for rebuilding operations. Additionally, it was proposed that a rebuilt trailer must be sold to the original owner under its original identity to prevent large-scale evasion of the standard by parties who might attempt to recycle old, unreliable equipment that would normally be junked.

The comments filed by trailer manufacturers and users uniformly supported the general nature of the revision. The Truck Trailer Manufacturers Association (TTMA) disagreed with the proposal, arguing that the agency's restriction on rebuilding should be somewhat stricter concerning increases in volumetric capacity (stretching) tank trailers. Fruehauf Corporation suggested a 4-year limit on rebuilding while others suggested a 10- or 12-year limit. Atlantic Container Line recommended a 15-year limit. The American Trucking Associations (ATA) considered the 8-year limit and the requirement for retained identity to be unworkable in view of current industry practices. Several commenters suggested a limit on rebuilding based on a percentage of the value of a comparable new trailer. Firestone stated that an 8-year limit on reuse of wheels and rims had no basis in safety. The

National Motor Vehicle Safety Advisory Council did not take a position on the proposal.

The Agency has considered each of the comments and concludes that trailer rebuilding can be somewhat expanded without interfering with the mandate of the Act that each vehicle "manufactured" on or after the effective date of an applicable standard must comply with it and be so certified. The cautionary approach of the TTMA appears to be limited to the potential hazards of increasing volumetric capacity of tank trailers, particularly those hauling hazardous materials. The NHTSA is not advocating unsafe rebuilding of truck trailers by this amendment, and relies on regulations of the Department of Transportation's Bureau of Motor Carrier Safety and Office of Hazardous Materials (49 CFR Parts 177, 178, 397) to specifically address safety of tank-type highway vehicles.

The agency proposed an 8-year limit on the rebuilding of trailers to prevent significant evasion of applicable safety standards by repeated reuse of a running gear assembly. The 8-year limit was suggested by the trailer manufacturer that petitioned for the proposed change. Comments generally stressed the difficulty in establishing a realistic approximation of trailer life, particularly in the case of "piggyback" or container chassis trailers where yearly highway mileage is low.

Practices for rebuilding trailers vary so significantly that the agency concludes that an age limit would not permit the legitimate reutilization of running gear assemblies that existed prior to the implementation of Standard 121. Therefore, the agency has withdrawn the age criterion for reuse of running gear assemblies.

The ATA along with a number of trucking companies such as Interway Corporation, Glendenning, and I&S McDaniel objected to the proposed requirement that the reassembled vehicle keep the identity of the vehicle from which the running gear was taken. Glendenning claims that such would restrict a user's flexibility to meet existing needs. I&S McDaniel said such a criterion would greatly reduce its flexibility in rebuilding trailers to different specifications. The Interway Corp. pointed out the warranty, parts replacement, and repair problems associated with

maintaining a trailer rebuilt by one company but identified as being built by another company.

The agency has considered the problems of maintaining every aspect of vehicle identity in the process of rebuilding. It is concluded that the requirement for use of the identification number of the existing vehicle in the reassembled vehicle will alone serve adequately to prevent avoidance of manufacturing responsibilities for newly manufactured vehicles. Therefore, the requirement for retention of identity is withdrawn with the exception of a requirement for continued use of the trailer's Vehicle Identification Number.

The third proposed restriction on rebuilding would require that the owner or lessor of the existing trailer also be the owner or lessor of the rebuilt trailer. The owner or lessor of the trailer in this case is the party who utilizes the trailer in its own operations and not someone who has bought the trailer simply to have it rebuilt for sale. Little comment was received on this restriction, and it appears to accord with the economic considerations underlying trailer rebuilding. Therefore, the restriction is made final as proposed. The agency considers that this limit and the requirement to continue a vehicle's VIN should adequately discourage rebuilding simply to avoid safety standards. The NHTSA can monitor the amount of rebuilding by means of its investigative authority under § 112 of the Act (15 U.S.C. § 1401) and can take action if evasion of the standards occurs.

Firestone Corporation assumed that the effect of the change would be that trailer rims and wheels could only be used for the period of the proposed restriction, and that the agency might be advocating reuse of wheels and rims for 8 years whatever their condition. Actually, the agency in no way intends to modify safe maintenance and operation practices by its action. Substitution of new components or reuse of old components is not advocated or discouraged by this action. In response to several suggestions that "frame attachment components" should not be mentioned in the description of a running gear assembly for fear that persons might reuse damaged attachment hardware, the reference has been deleted.



In accordance with recently-enunciated Department of Transportation policy encouraging adequate analysis of the costs and other consequences of regulatory actions (41 F.R. 16201, April 16, 1976), the NHTSA herewith publishes its evaluation of the economic and other consequences of this proposal on the public and private sectors, including possible loss of safety benefits. In this case the change permits trailer users to continue their present practice of utilizing useable running gear in rebuilding of their trailers. It is therefore calculated that there are no new costs to the trucking industry associated with the change. It is anticipated that the benefits derived from the new braking systems will be delayed in the case of rebuilt trailers for a limited period.

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In consideration of the foregoing, a new paragraph (f) is added to 49 CFR 571.7 *Applicability*.

*Effective date:* July 1, 1976. Because this amendment creates no additional requirement for any person, and to permit trailer rebuilding in cases where it has been impractical in the past, it is found that an immediate effective date is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50).

Issued on June 23, 1976.

Acting Administrator  
Robert L. Carter

**41 F.R. 27073**  
**July 1, 1976**



**PREAMBLE TO AMENDMENT TO PART 571—FEDERAL  
MOTOR VEHICLE SAFETY STANDARDS**

This amendment updates the addresses given for the Society of Automotive Engineers, Inc., and the United States of America Standards Institute in § 571.5 of 49 CFR Part 571.

Since this amendment is for the purpose of correcting inaccurate addresses and does not affect any substantive rights, notice and public procedure are not required and the amendment is made effective upon issuance.

In consideration of the foregoing, § 571.5 of Title 49 of the Code of Federal Regulations (49 CFR 571) is amended in part. . . .

*Effective date:* December 2, 1976.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8)

Issued on November 24, 1976.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**41. F.R. 52880  
December 2, 1976**



## **PREAMBLE TO AMENDMENT TO PART 571— FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

### **DEFINITIONS**

**(Docket No. 78-06; Notice 1)**

This notice amends the general definitions section of Part 571 (49 CFR Part 571.3) by adding the definitions of "speed attainable in 1 mile" and "speed attainable in 2 miles." These definitions are currently contained in several motor vehicle safety standards. Since the terms are used in the requirements of more than one standard, it is appropriate to define them in the general definitional section which applies to all safety standards in Part 571.

Effective Date: March 9, 1978.

For further information contact:

Kathleen DeMeter, Office of Chief Counsel,  
National Highway Traffic Safety Adminis-  
tration, 400 Seventh Street, S.W., Washing-  
ton D.C. 20590 (202-426-1834).

Supplementary Information: Part 571.3 of Title 49, Code of Federal Regulations, contains definitions of terms used in the various motor vehicle safety standards. Many safety standards also contain their own definitional section which defines terms used only in the particular stand-

ard. When a term is used in more than a single standard, it is appropriate that its definition be relocated in the generally applicable Part 571.3 definitions section. This eliminates the need to republish the definition of a particular term in each standard in which the term is used.

The terms "speed attainable in 1 mile" and "speed attainable in 2 miles" are each defined in more than one safety standard. For the aforementioned reasons, this notice deletes the definitions of the terms from the standards in which they appear and adds them to 571.3. Accordingly, 49 CFR Part 571 is amended:

(Sec. 102, 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1391, 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on February 28, 1978.

Joan Claybrook  
Administrator

**43 F.R. 9606  
March 9, 1978**



# **PREAMBLE TO AMENDMENT TO PART 571— FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

## **DEFINITIONS**

**(Docket No. 78-02; Notice 1)**

This notice is an interpretative amendment of the agency's definition of "unloaded vehicle weight." It grants petitions from several manufacturers asking the agency to amend the definition of this term to reflect an existing agency interpretation concerning the definition.

Effective Date: March 9, 1978.

For further information contact:

Mr. William Smith, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-2242).

**Supplementary Information:** This notice amends Title 49, Code of Federal Regulations, Part 571.3 by clarifying the meaning of "unloaded vehicle weight." "Unloaded vehicle weight" is currently defined as "the weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle, but without cargo or occupants."

In July 1976, the NHTSA issued a letter of interpretation in response to a request from the Jeep Corporation concerning the definition of "unloaded vehicle weight." In that interpretation, the agency stated that the unloaded weight of a vehicle does not include the weight of those accessories that are ordinarily removed from a vehicle when they are not in use.

The Chrysler Corporation and the Truck Body and Equipment Association (TBEA) subsequently petitioned the NHTSA to amend the definition of "unloaded vehicle weight" to reflect the existing agency interpretation. Further, TBEA and Chrysler requested an even broader classification of the accessories whose weight would not be included in the computation of "unloaded vehicle weight." Chrysler and TBEA

asked that the weight of accessories which are not normally removed from a vehicle when they are not in use also be excluded from the computation of "unloaded vehicle weight." The agency granted the petitions to amend the definition to reflect the existing agency interpretation but denied the portions of both petitions requesting an extension of that interpretation.

The agency has interpreted "unloaded vehicle weight" as excluding the weight of accessories ordinarily removed from a vehicle when they are not in use in order to approximate more closely the actual unloaded weight of a vehicle. The type of equipment or accessories not to be included in computing "unloaded vehicle weight" includes: snow plows, spreaders, and tow bars, among others.

To codify the existing agency interpretation, the definition of "unloaded vehicle weight" in 49 CFR Part 571.3, definitions is hereby amended. . . .

Since this amendment is interpretative in nature, and reflects current understanding and practice, it is found for good cause that notice and public procedures thereon are unnecessary, and that an immediate effective date is in the public interest.

The principle author of this notice is Roger Tilton of the Office of Chief Counsel.

(Secs. 103 and 109, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on March 1, 1978.

Joan Claybrook  
Administrator

**43 F.R. 9605  
March 9, 1978**





**PREAMBLE TO AMENDMENT TO PART 571  
FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

**Subpart A—General**

**(Docket No. 78-13; Notice 2)**

*Action:* Final rule.

*Summary:* The purpose of this notice is to amend the definition of "designated seating position" (49 CFR 571.3) to clarify that the term includes any position likely to be used for seating accommodation while the vehicle is in motion. This amendment is based on a notice of proposed rulemaking issued September 21, 1978 (43 FR 44556). Dimensional parameters are specified in the amended definition to ensure proper and consistent designations of seating positions. This clarification is intended to ensure that all positions likely to be used for seating accommodation will be equipped with occupant restraint systems for the protection of the persons using those positions and to ensure that vehicles are safely designed to accommodate their actual occupant capacity.

*Effective date:* September 1, 1980.

*Addresses:* Any petitions for reconsideration should refer to the docket number and notice number and be submitted to: Docket Section, Room 5108—Nassif Building, 400 Seventh Street, S.W., Washington, D.C. 20590.

*For further information contact:*

Guy Hunter, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, Washington, D.C. 20590 (202-426-2265).

*Supplementary information:* Safety Standard No. 208 (49 CFR 571.208) requires manufacturers to provide occupant crash protection for each "designated seating position" in motor vehicles. That term is defined in 49 CFR 571.3 as:

"[A]ny plan view location intended by the manufacturer to provide seating accommodation while the vehicle is in motion, for a person at least as large as a fifth percentile adult female, except auxiliary seating accommodations such as temporary or folding jump seats."

(Note: "plan view" means an overhead view looking down)

Last year, the NHTSA published a notification to vehicle manufacturers concerning the agency's interpretation of the term "designated seating position", because of concern that certain recent vehicle models have improperly designated seating capacities (43 FR 21893, May 22, 1978). The front or rear seats in these models have been designated by their manufacturers as having only two seating positions even though the seats are clearly capable of accommodating three adult occupants and are being so used. This, of course, represents a safety threat to the center-seat passenger since no restraint system is provided. These designations are not only improper but also inconsistent with other designations because the manufacturers designate other models with equivalent seating space as having three positions and provide three sets of restraint systems.

The earlier notification emphasized that although it is the manufacturer which designates the number of seating positions under the current definition, the manufacturer's intent will be determined by the agency on the basis of all facts and his declarations of intent will not be accepted by the agency if they are inconsistent with the

actual vehicle design. NHTSA letters of interpretation have always emphasized that the manufacturer's designation must be made in good faith and must conform to the basic policies and tenor of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1381, *et seq.*).

Manufacturers' comments to the notification led the agency to issue a proposal to amend the definition of "designated seating position" to provide an adequate number of occupant restraints, to secure greater consistency in the seating capacity designations by the manufacturers, and to assure consumers contemplating buying a new vehicle that comparable vehicle sizes are similarly designated (43 FR 44556, September 28, 1978). As pointed out in the proposal, an investigation of the criteria used by manufacturers to designate seating capacities of current models indicates that manufacturers' designations often involve many purely marketing considerations. The proposal cited the example of one manufacturer that stated to the agency it changed the front and rear seating configuration on one of its models from 3 front-2 back to 2 front/3 back (number of positions) because competitive cars with similar dimensions for front-seat shoulder and hip room were being designated with only two front seat positions. This designation change was made even though the front and rear seats remained virtually the same in terms of available seating space.

Manufacturers have pointed to seat width, hip room, shoulder room, leg room, seat trim and seat padding among other things to demonstrate their "intent" concerning the number of positions that should be used for seating accommodation. For example, even though a particular model might have sufficient hip room for three adult passengers, the manufacturer points to seat trim and lack of comparable padding in the center position as evidence that the manufacturer does not intend for that position to be used. As noted in the proposal, however, this reasoning does not take into account the realities of the vehicle's actual use and what the manufacturer can expect if he has provided sufficient room for a third passenger, even if the center position is not as comfortable as the two outside seat positions. If there is sufficient space on a bench or split bench seat for a center seat passenger, and no

rigid obstruction such as a console, it must be said that the manufacturer "intended" that space to be used as a seating position, since the center position will likely be used by a substantial number of persons.

In order to clarify the existing definition of "designated seating position" and to codify the agency's interpretations of that definition, the previous notice proposed to amend the definition as follows to remove reference to the manufacturer's "intent" and to specify dimensional criteria to assure proper and consistent designations of seating capacity:

"Designated seating position" means any plan view location capable of accommodating a person at least as large as a 5th percentile adult female, if the overall seat configuration and design and vehicle design is such that the position is likely to be used as a seating position while the vehicle is in motion, except for auxiliary seating accommodations such as temporary or folding jump seats. Any bench or split-bench seat in a passenger car, truck, or multipurpose passenger vehicle with a GVWR less than 10,000 pounds, having greater than 50 inches of hip space shall have not less than three designated seating positions."

The agency has analyzed and given due consideration to the twenty-one comments that were received from interested persons concerning the proposed amendment of "designated seating position". All comments have been considered. Several modifications of the amended definition have been made in response to those comments. The great majority of comments did not disagree with the intended purpose of the proposed amendment. For example, General Motors Corporation stated that it does not oppose the concept that a vehicle manufacturer should provide occupant restraint systems for persons who use the seating accommodations provided in the vehicle.

American Motors Corporation did question the need for a revision of the definition and stated that the proposal contained "only unsubstantiated allegations of improper designation of seating positions". In response to this comment, the agency is placing in the public docket a copy of the Motor Vehicle Manufacturers Association

specifications for various 1978 and 1979 model vehicles. These data list vehicle models and specify their hip-room and the number of positions currently designated by manufacturers. These specifications demonstrate the inconsistencies in many current designations and illustrate that bench and split-bench seats in some vehicle models have only two designated seating positions even though a similar vehicle model of the same make has three designated positions with less seating space.

Neither American Motors nor any other commenter refuted the fact that there are many vehicle models with usable center seats that are not designated as "seating positions". However, American Motors charged that the proposal only contained "baseless assertions of the NHTSA's perception of real-world uses of center front seating positions". It is the NHTSA's position that every center seating position that is likely to be used should be equipped with a restraint system regardless of the overall statistical rate of use of center positions, since every potential occupant should be afforded protection in the event of a vehicle crash. The existing definition of "designated seating position" is based on this premise. The agency is, however, placing copies of vehicle accident statistics in the docket which show that the number of center-seat passengers in motor vehicles and the number of center-seat fatalities and injuries is substantial. Data from the NHTSA's Fatal Accident Reporting System show that in 1977, 588 front center-seat passengers and 365 rear center-seat passengers were killed in vehicle accidents. Further, the use rate of center-seat positions will be affected by the future design of vehicles. Therefore, the clarified definition of "designated seating position" will ensure that future designs do not encourage center-seat use unless occupant crash protection is afforded those positions.

While the majority of comments agreed with the concept of the proposed change, there were numerous complaints about the language of the proposed definition. Several commenters objected to the phrase, "the position is likely to be used as a seating position", arguing that the word "likely" is subjective. Holiday Rambler Corporation stated that neither the manufacturer nor NHTSA can reasonably anticipate where

occupants of a vehicle are likely to sit while the vehicle is in motion, as vehicles are often subject to misuse or abuse by their occupants. Other commenters stated that manufacturers would not be certain their determination of "likely use" would be the same as the agency's determination.

The agency does not agree that the definition is subjective, since the definition does not only provide that any position likely to be used is a designated seating position, it also provides the criteria for making that determination. Those criteria relate to vehicle design and the overall seat configuration. Further, the amended definition is more objective than the existing definition which is based on manufacturer's intent, which has not given rise to any complaints of subjectivity. NHTSA interpretations have emphasized that "intent" does not mean that manufacturers have "carte blanche" to designate seating capacities, but rather, that the manufacturer's intent is determined by the seat configuration and vehicle design.

International Harvester suggested that the word "likely" be dropped from the definition and that the phrase "is to be used as a seating position" be substituted. The agency does not believe this would be a meaningful change, however, since the manufacturer's determination would still be based on the particular vehicle design and seat configuration. Further, the word "likely" indicates that the use must be more than minimal or chance use. As noted by General Motors, Webster's New World Dictionary defines the word "likely" to mean probable or fairly certain. In response to Holiday Rambler's comment, the agency notes that the word "likely" relieves manufacturers of the responsibility of providing for abusive or unorthodox use of a particular position in a motor vehicle. For example, people would not "likely" sit on a rigid console even though a few individuals might misuse this position from time to time. Under the definition, a manufacturer would not be required to consider the console as a designated seating position.

General Motors suggested that the same phrase be changed to read, "Likely to be used by a substantial number of people". However, the agency believes that such a change is unnecessary for

the reasons set forth in the immediately preceding paragraph.

Rover Triumph recommended that the phrase be changed to read, "any plan view location provided with an upholstered seat and backrest capable of accommodating a person at least as large as a 5th percentile adult female". The agency believes that such a change would be unduly stringent, however, since the overall vehicle design would not be considered in determining designated seating capacity under such a definition. There may be some locations capable of accommodating a 5th percentile female that are not likely to be used because of the overall vehicle design (a protruding dash board at the center position, for example). The agency has concluded that any definition of "designated seating position" must necessarily be subjective to a certain extent, to avoid being too restrictive or harsh on manufacturers.

The proposed definition change of "designated seating position" included the following caveat to ensure proper and consistent designations of seating capacity:

"... Any bench or split-bench seat in a passenger car, truck or multipurpose passenger vehicle with a GVWR less than 10,000 pounds, having greater than 50 inches of hip space shall have not less than three designated seating positions."

There were numerous comments concerning this caveat. Nissan, Toyota, Toyo Kogyo, and Mercedes-Benz pointed out that the caveat specifies no procedure for measuring hip room, and suggested that the SAE Standard J1100(a) procedure be used. The NHTSA agrees that a procedure should be specified and intended for the measurement to be according to the SAE Standard J1100(a). This is the same procedure used in the regulations of the Environmental Protection Agency for providing fuel economy information for comparable vehicles. Accordingly, that procedure is included in the caveat as set forth in this notice. Also, in response to a comment by General Motors the phrase "hip space" is changed to read "hip room", to correspond with the language of SAE Standard J1100(a).

Many commenters stated that "hip room" should not be the only determinative factor in the caveat. Commenters argued that shoulder room, leg room, head clearance, and other factors should also be considered in determining the number of designated seating positions on a bench or split-bench seat. Ford Motor Company stated that hip room is not as useful a descriptor as shoulder room in determining the number of positions that can be used. Ford stated that a hip room of 51.1 inches and a shoulder room of 53.8 inches are required to seat side-by-side three persons of randomly selected sizes at least 50 percent of the time. Volkswagen and Toyota also disagreed with the hip-room criteria and argued that the driver must be afforded more room for safe and comfortable operation of the vehicle than is provided if a 50-inch hip room criteria is used without also specifying shoulder room.

The NHTSA agrees that shoulder room, leg room, and head clearance are factors which may influence the number of persons who will use a bench or split-bench seat. However, the agency has concluded that hip room is the primary factor that determines the number of persons who will likely use a seat. Also, data obtained from the Motor Vehicle Manufacturers Association indicates that the vast majority of vehicles have more shoulder room than hip room. Thus, a vehicle that has 50 inches of hip room will nearly always have at least 50 inches of shoulder room and in all probability more than 50 inches of shoulder room. The shoulder width of a 5th percentile adult female is 15.7 inches. Therefore, three occupants of that size could easily sit abreast on a bench or split-bench seat having only 50 inches of shoulder room. In setting the hip-room criteria in the proposed definition, the agency used the dimension that is approximately three times the width of a 16.5-inch hip, 95th percentile adult male (a male weighing 215 pounds). As the agency pointed out in the proposal, this would be sufficient hip space for three large-size adults to sit side-by-side. In basing the 50-inch criteria on the 95th percentile male rather than on the hip width of 5th percentile females, the agency proposed a liberal limit on the manufacturer's designation of seating capacity. Fifty inches of hip space is not only adequate to sit three large-size adults side-by-side,

but more than adequate to sit random size riders side-by-side, particularly if one of the occupants is a child. If one of the occupants is smaller than a 95th percentile male, shoulder room would be more than ample if the hip room is greater than 50 inches. In either case, there would be more than ample room for the driver to comfortably and safely operate the vehicle.

The agency has concluded that manufacturers must assume that three persons will likely use a bench or split-bench seat if there is over 50 inches of usable hip room. The agency rejects Ford's recommendation that the criteria be 51.1 inches of hip room, since Ford offers no data to indicate 50 inches is an unrealistic limit. We do note, however, that one current Ford model has a front bench seat with 55.9 inches of hip room and yet only two designated seating positions.

The agency has concluded that the addition of a shoulder room or leg room specification in the caveat is an unnecessary complication of the criteria since the 50 inch hip room specification is a liberal limit on manufacturers' discretion in this area. The Australian Design Rule No. 5A is more stringent. It specifies that, in the case of bench seats, the number of seating positions shall be the number of complete multiples of 16 inches. Therefore, under the Australian rule three positions are required to be designated if a bench seat has only 48 inches of hip room.

Toyo Kogyo questioned whether, in the case of hip room less than 50 inches, designating only two seating positions is "unconditionally permitted." The notice proposing this amendment stated that the 50-inch specification does not mean that some vehicle seats with less than 50 inches of hip space should not also have more than two designated seating positions, if the vehicle and seat design is such that three positions would likely be used. It was pointed out that the specification is merely the amount of space the agency will consider as conclusive evidence that there should be at least three designated seating positions. These statements are not intended to imply that the agency would require seating position designations for each space capable of accommodating a 5th percentile female if the overall vehicle design and seat configuration is such that three positions would not likely

be used. However, the seat design should be such that it is obviously to be used by only two persons if the manufacturer only designates two positions. For further guidance, see the discussion below of obstructions and impediments that will affect designations.

Several commenters requested other changes in the 50-inch hip room caveat of the proposed definition. American Motors stated that a specified hip room caveat is unnecessary due to the first part of the proposed definition: "Given the fact that unless the overall vehicle/seat configuration is such that a third dsp (designated seating position) is impracticable, any 50-inch-wide seat will have the capability of accommodating at least three 5th percentile adult females and be so designated. Therefore, a specified hip space criterion of 50 inches is redundant to the first part of the proposed definition." While the NHTSA acknowledges American Motors' statement that any 50-inch-wide seat will have the capability of accommodating at least three occupants, the agency does not agree that such a seat would always be designated as having three positions if the caveat were not present. Past industry practice in some cases supports this conclusion, as evidenced, for example, by American Motors' 1977 "Pacer" model vehicle, which has 55.8 inches of hip room in the front seat, yet only two designated seating positions. As the agency stated in the notice proposing this amendment, the caveat is intended to emphasize the amount of space the agency will consider as conclusive evidence that there should be at least three designated seating positions.

Ford Motor Company stated that the caveat, as proposed, implies that vehicles with bench or split-bench seats having over 50 inches of hip room must have three designated seating positions, "regardless of the existence of impediments such as consoles, shift levers, fixed arm rests, trays, integral occupant restraint mountings or hardware, hard unsprung or unupholstered surfaces, or center depressions or elevations." Ford suggested that any limiting caveat be accompanied with the provision that it is "applicable only to seating obviously designed for three or more occupants." The NHTSA, of course, did not intend for the definition to imply that a rigid console should be considered a seating position.



as the agency noted in the preamble of the proposal. Therefore, the space occupied by a rigid console or a fixed, stationary armrest, for example, would not be considered hip room and would not be included in the measurement of the 50-inch limitation. This does not mean, however, that small, upholstered elevations or depressions in a bench seat should not be included in the measurement since these designs do not impede the use of center positions. To be excepted from the measurement there would have to be an obvious obstruction or impediment to sitting in the position, such that the position is obviously not intended to be used as a seat. A movable armrest that can be raised to the seat back would not constitute an impediment to use of the position. Likewise, the presence of a floor gear-shift lever would not normally be sufficient to discourage or make use of a center position on a bench seat impossible, even if the bench seat has a slightly indented contour for the shift lever. However, there could conceivably be a vehicle design in which the lever would constitute an impediment to sitting (if the lever extends to within a few inches of the seat back, for example). Regarding "integral occupant restraint mountings or hardware", if there is greater than 50 inches of hip room on the bench or split-bench seat there generally must be three designated seating positions, and the hardware will be situated in a manner not to create an impediment to seating. If no padding or upholstery is provided on the seat and if no back rest is provided, it is not likely that the position would be used and the agency would not include the space in measurement of hip room. Also, if there is a movable armrest that can be lifted to substitute as a backrest that position on the bench seat would likely be used and the space would be included in the measurement of hip room.

Fiat and several other commenters requested that the meaning of bench seat and split-bench seat be defined, one requesting that a definition be included. Fiat requested, specifically, that the agency specify that if a central armrest is provided a seat should not be considered a "bench" seat. The agency does not believe it is necessary to add a definition of "bench" and "split-bench" seat to the definition of "designated seating position". Bench and split-bench seats are seats

other than conventional bucket seats. Bucket seats are separated by a substantial amount of space and are two distinct seats. Split-bench seats are generally separated, if at all, only slightly to the extent necessary for independent movement of the separate portions. Therefore, any seat design having greater than 50 inches of continuous hip room, even if interrupted slightly to allow independent movement of separate portions, would be considered a bench or split-bench seat and would have to have three designated seating positions.

In order to respond to the concerns of Fiat, Ford, and other commenters, the agency has determined that the caveat should be changed to clarify that if rigid obstructions or other designs preclude the use of the center position, that position need not be designated as a seating position and, therefore, need not be equipped with restraints regardless of the overall width of the seat. Therefore, the caveat as issued in this notice includes the phrase, "unless the seat design or vehicle design is such that the center position cannot be used for seating." This exception to the caveat would include, for example, a bench seat having greater than 50 inches of actual hip space if the vehicle's design is such that the dash board at the center position, extends out to near the seat back, precluding use of the seat space. Likewise, the exception would include a *fixed* armrest or a rigid, *fixed* console located in the center of the bench or split-bench seat.

General Motors requested that the 50-inch caveat be modified to allow only two designated seating positions in vehicles having bench or split-bench seats equipped with passive seat belts at the outboard positions. General Motors stated that the proposed definition would preclude the use of passive belts in full-size cars equipped with bench seats, presumably because there are currently no designs for center-position passive belts. General Motors argued that bench seats are somewhat cheaper than bucket seats, and that passengers are not likely to crawl under the outside passive belt to occupy the center position. The agency does not agree that the center position of a bench seat equipped with passive belts would not be used. If there is sufficient space on a bench or split-bench for three passengers, a substantial number of persons are likely to use

the center position, even if the seat has passive belts. Passengers could move around the passive belt to gain access to the center position and parents could easily place children in such positions. Further, there is a good possibility that the exception requested by General Motors would lead to defeat of passive belts so that the center position could be used more conveniently. While the agency is sympathetic with the marketing and cost concerns of manufacturers, we believe there are alternatives which will ensure the safety of the motoring public. As General Motors stated in its comments, a vehicle's design can "make the two passenger designation more clear". For example, a manufacturer that wishes to use bench seats in vehicles equipped with passive belts can include a fixed armrest in the center position of the bench seat to emphasize that the location is not a seating position. As just noted, the definition set forth in this notice makes clear that such a center position need not be designated as a seating position. It could be argued that parents may also sit children on fixed consoles, but manufacturers will not be held responsible, with respect to designating a seating position, for abusive or unlikely use of their vehicles.

Nissan Motor Company requested that the NHTSA examine the "cost benefit" concerns of requiring three seating positions for rear seats having greater than 50 inches of hip room. Nissan is currently designating only two seating positions in the rear seat of its Datsun models and is concerned that the new definition will require the addition of a third seat belt in the rear seat and an upgrading of the braking performance of those vehicles. Nissan stated that it assumes there is little possibility that three passengers occupy rear seats.

After considering Nissan's comments and reviewing data concerning the use of the center position in rear seats, the agency has concluded that rear seats should not be excluded from the 50-inch hip room caveat in the definition of "designated seating position". While it may be true that, statistically, fewer persons use the center rear seating position than use the center front seating position, there are substantial numbers who do use the rear position. As mentioned earlier, the agency believes that all pas-

sengers should be provided with a restraint system for occupant crash protection. If a rear seat has greater than 50 inches of unobstructed hip room, that seat is likely to be used by three passengers and the third passenger should be protected. If a manufacturer chooses to use a large rear seat and wishes to designate only two positions, it must design the seat for only two passengers. This too can be accomplished by the installation of a fixed armrest or other impediment to use of the center position.

General Motors, American Motors, and Aston Martin Lagonda challenged NHTSA's statement in the proposal preceding this amendment that the changed definition will have no inflationary impact. The manufacturers state that they will be forced to make changes in seat design, to install additional restraint systems, and to upgrade braking and other systems due to increased weight if the existing definition is altered. They charged that the cost of these changes will have a definite inflationary impact. The agency cannot agree with these statements. The amended definition is a clarification of the existing definition and a codification of its interpretation, and does not create a "demonstrably more stringent standard" as stated by General Motors. As pointed out by the agency in the earlier "Notification to Manufacturers", manufacturers have improperly and inconsistently designated seating capacity on some vehicles and failed to comply with the existing definition of "designated seating position" and its interpretations. Manufacturers have failed to designate positions in their vehicles that were obviously intended to be used for seating while the vehicle is in motion, as demonstrated by vehicle and seat design and by designations in comparable vehicle models. While the agency acknowledges that there will be costs associated with modifications that will have to be made on some vehicles, these costs will be the result of bringing vehicles into compliance with an existing standard. When the agency requires a recall campaign for noncompliance with a Federal safety standard there are, of course, often tremendous cost impacts on manufacturers. This does not mean, however, that the agency action is inflationary rulemaking. Further, the past failure of the NHTSA to adequately enforce

standards dependent on the definition of "designated seating position" does not preclude clarification of how that definition will effect enforcement of those standards in the future.

The amended definition issued today does not require manufacturers to use any particular vehicle design or seat configuration or, for example, to upgrade braking performance levels. Manufacturers are free to use any seat configuration they choose, just as they are free to build any size car they desire, with any materials they desire. The definition does not require the use of more costly bucket seats. The definition does provide, however, that if a manufacturer chooses to use a bench seat or a split-bench seat, it shall designate the number of seating positions that seat actually contains. This has been the requirement since the definition was first issued. If a manufacturer "intends" for a position to be used he should provide restraints and ensure that the other vehicle systems are safely constructed to accommodate the passenger weight capacity. The inclusion of the phrase "likely to be used" in the amended definition does not change the requirement or add subjectivity to the requirement. If a manufacturer does not intend for a position to be used, the design of the vehicle should be such that this is obvious to vehicle users. If the design of a seat position is such that it obviously was not intended for use, it will not "likely be used". Manufacturers can easily manifest their true intent by installing stationary or fixed armrests. Manufacturers should, therefore, have no problem unless they, in fact, want to market the vehicle with a bench seat capable of seating three persons, yet designate only two seating positions.

Ford Motor Company expressed concern about the application of the proposed new definition to vehicles exceeding 10,000 pounds GVWR. Ford stated that the definition appears to be based on 5th percentile adult female accommodation and that this could require four sets of belts in some of its large trucks having bench seats with over 58 inches of hip room. The new definition specifies that any plan view location capable of accommodating a person at least as large as a 5th percentile adult female will be considered a designated seating position if the overall seat configuration and design and vehicle

design is such that the position is likely to be used as a seating position while the vehicle is in motion. In the case of large tractor-trailer type vehicles greatly over 10,000 pounds GVWR, the overall vehicle design is not such that four persons would likely use a bench seat. These large vehicles are primarily cargo-carrying vehicles, not passenger-carrying vehicles. Therefore, the agency would not consider the provision of four seating positions to be necessary or within the meaning of the phrase "likely to be used", found in the definition. It was for this reason that the definition's caveat requiring three seating positions for bench seats having over 50 inches of hip room was limited to vehicles under 10,000 pounds GVWR.

Holiday Rambler Corporation objected to the application of the proposed new definition of "designated seating position" to motor homes. Holiday pointed out that motor homes are designed to provide accommodations and counterments for purposes other than transportation, such as sleeping. Holiday stated that the proposed definition would require many restraint systems in locations not required by the current definition. The agency finds no merit in Holiday's arguments since the effect of the amended definition as applied to motor homes is exactly the same as the existing definition. Motor home manufacturers are currently required to designate as a seating position any location intended by the manufacturer to provide seating accommodation while the vehicle is in motion. As has been repeatedly pointed out in past interpretations of this definition, a manufacturer's intent will be determined by the agency on the basis of all facts, and the manufacturer's declarations will not always be accepted by the agency if they are inconsistent with actual vehicle design. The amended definition clarifies and codifies this interpretation by removing reference to the manufacturer's intent and emphasizing that any position likely to be used while the vehicle is in motion will be considered a designated seating position. Whether a seat will "likely be used while the vehicle is in motion" will be determined by the seat configuration and design and by the vehicle design.

The agency is currently investigating noncompliance with the existing definition of "designated seating position".



nated seating position" in certain motor homes. These motor homes have seating positions that were obviously intended for use while the vehicle is in motion, yet the seats are not equipped with restraint systems and do not comply with Safety Standard No. 207, *Seating Systems* (49 CFR 571.207). Manufacturers of these motor homes have abused the meaning of the phrase "intended by the manufacturer" and placed labels on the seats stating that they are not intended for use while the vehicle is in motion, even though the manufacturers know the seats will in fact be used. These abuses primarily involve seats at the front driving portion of the vehicles, not seats in the rear of the vehicle that are present for living accommodation when the vehicle is stationary. One model under investigation has four pedestal seats at the front driving portion of the vehicle, yet only the front two seats are designated as seating positions. It is the agency's position that a manufacturer must provide designated seating positions for the number of persons it advertises its vehicle will accommodate. In the case of a motor home, this means that if such a vehicle is advertised to "sleep six," the manufacturer must assume that the six persons will ride in the vehicle to their sleeping destination and thus must designate six seating positions. These persons should have the benefit of occupant restraint systems and seats that meet the crashworthiness performance requirements of Safety Standard No. 207. It is the agency's position further that generally all seats in the front driving area of a motor home must be among the designated seating positions since those seats are the ones most likely to be occupied while the vehicle is in motion. For example, if a motor home is advertised as sleeping six persons and has four pedestal seats in the front driving area and several additional seats in the rear living accommodation area, the four pedestal seats and two of the seats in the rear area must be designated as seating positions.

The notice proposing this amendment of the definition of "designated seating position" specified an effective date for the proposed change of September 1, 1979. Nearly all commenters requested that the effective date of any amendment of the definition be delayed until September

1, 1980, or one year after the issuance of a final rule and coincident with the beginning of a model year. Manufacturers stated that this time would be necessary to make modifications to some of their models and would reduce the cost of these modifications. The agency has determined that these requests have merit since many manufacturers have already completed vehicle designs for their 1980 models, and since the additional period would minimize the cost of bringing their vehicles into compliance with the existing and amended definition of "designated seating position". Accordingly, the agency will not enforce the 50-inch hip room caveat of the new definition until September 1, 1980. This grace period prior to enforcement of the caveat does not mean, however, that the agency will not enforce the general provisions of the definition prior to that date, in cases in which a manufacturer has failed to designate a seat that was obviously intended for use while the vehicle is in motion and will likely be so used. General Motors' request that the effective date of any amendment be phased-in with the upcoming passive restraint requirements is hereby denied. The additional one year period specified in this notice should be ample to allow manufacturers to make any necessary modifications.

The agency has determined that this rule-making has no significant economic or environmental impacts, since it clarifies the existing definition and its interpretations. However, the agency is placing in the public docket an evaluation discussing the vehicles that are currently not in compliance with the existing definition and discussing the costs manufacturers might have to incur to bring all of their vehicle models into compliance with the existing and clarified definition of "designated seating position".

The engineer and lawyer primarily responsible for the development of this notice are Guy Hunter and Hugh Oates.

In consideration of the foregoing, the definition of "designated seating position" as specified in 49 CFR 571.3 is amended to read as follows:

"Designated seating position means any plan view location capable of accommodating a person at least as large as a 5th percentile adult female, if the overall seat configura-

tion and design and vehicle design is such that the position is likely to be used as a seating position while the vehicle is in motion, except for auxiliary seating accommodations such as temporary or folding jump seats. Any bench or split-bench seat in a passenger car, truck or multipurpose passenger vehicle with a GVWR less than 10,000 pounds, having greater than 50 inches of hip room (measured in accordance with SAE Standard J1100(a)) shall have not less than three designated seating positions,

unless the seat design or vehicle design is such that the center position cannot be used for seating."

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 708 (15 U.S.C. 1392, 1407), delegation of authority at 49 CFR 1.50.)

Issued on April 12, 1979.

Joan Claybrook  
Administrator

**44 F.R. 23229**

**April 19, 1979**

## PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

### SUBPART A—GENERAL

#### § 571.1 Scope.

This part contains the Federal Motor Vehicle Safety Standards for motor vehicles and motor vehicle equipment established under section 103 of the National Traffic and Motor Vehicle Safety Act of 1966 (80 Stat. 718).

#### § 571.3 Definitions.

(a) *Statutory definitions.* All terms defined in section 102 of the Act are used in their statutory meaning.

(b) *Other definitions.* As used in this chapter "Act" means the National Traffic and Motor Vehicle Safety Act of 1966 (80 Stat. 718).

"Approved," unless used with reference to another person, means approved by the Secretary.

"Boat trailer" means a trailer designed with cradle-type mountings to transport a boat and configured to permit launching of the boat from the rear of the trailer.

"Bus" means a motor vehicle with motive power, except a trailer designed for carrying more than 10 persons.

"Curb weight" means the weight of a motor vehicle with standard equipment: maximum capacity of engine fuel, oil, and coolant; and, if so equipped, air conditioning and additional weight optional engine.

"Designated seating capacity" means the number of designated seating positions provided.

"Designated seating position" means any plan view location capable of accommodating a person at least as large as a 5th percentile adult female, if the overall seat configuration and design and vehicle design is such that the position is likely to be used as a seating position while the vehicle is in motion, except for auxiliary seating accommodations such as temporary or folding jump seats. Any bench or split-bench seat in a passenger car, truck or multipurpose passenger vehicle with a GVWR less than 10,000 pounds, having greater than 50 inches of hip room (measured in accordance with SAE Standard J1100 (a)) shall have not less than three designated

seating positions, unless the seat design or vehicle design is such that the center position cannot be used for seating.

"Driver" means the occupant of a motor vehicle seated immediately behind the steering control system.

"Emergency brake" means a mechanism designed to stop a motor vehicle after a failure of the service brake.

"5th percentile adult female" means a person possessing the dimensions and weight of the 5th percentile adult female specified for the total age group in Public Health Service Publication No. 1000, Series 11, No. 8, "Weight, Height, and Selected Body Dimensions of Adults."

"Fixed collision barrier" means a flat, vertical, unyielding surface with the following characteristics:

(1) The surface is sufficiently large that when struck by a tested vehicle, no portion of the vehicle projects or passes beyond the surface.

(2) The approach is a horizontal surface that is large enough for the vehicle to attain a stable attitude during its approach to the barrier, and that does not restrict vehicle motion during impact.

(3) When struck by a vehicle, the surface and its supporting structure absorb no significant portion of the vehicle's kinetic energy, so that a performance requirement described in terms of impact with a fixed collision barrier must be met no matter how small an amount of energy is absorbed by the barrier.

"Firefighting vehicle" means a vehicle designed exclusively for the purpose of fighting fires.

"Forward control" means a configuration in which more than half of the engine length is rearward of the foremost point of the windshield base and the steering wheel hub is in the forward quarter of the vehicle length.

"Gross axle weight rating" or "GAWR" means the value specified by the vehicle manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces.

"Gross combination weight rating" or "GCWR" means the value specified by the manufacturer as the loaded weight of a combination vehicle.

"Gross vehicle weight rating" or "GVWR" means the value specified by the manufacturer as the loaded weight of a single vehicle.

"H point" means the mechanically hinged hip point of a manikin which simulates the actual pivot center of the human torso and thigh, described in SAE Recommended Practice J826. "Manikin for Use in Defining Vehicle Seating Accommodations," November 1962.

"Head impact area" means all non-glazed surfaces of the interior of a vehicle that are statically contactable by a 6.5-inch diameter spherical head form of a measuring device having a pivot point to "top-of-head" dimension infinitely adjustable from 29 to 33 inches in accordance with the following procedure, or its graphic equivalent:

(a) At each designated seating position, place the pivot point of the measuring device—

(1) For seats that are adjustable fore and aft, at—

(i) The seating reference point; and

(ii) A point 5 inches horizontally forward of the seating reference point and vertically above the seating reference point an amount equal to the rise which results from a 5-inch forward adjustment of the seat or 0.75 inches; and

(2) For seats that are not adjustable fore and aft, at the seating reference point.

(b) With the pivot point to "top-of-head" dimensions at each value allowed by the device and the interior dimensions of the vehicle, determine all contact points above the lower windshield glass line and forward of the seating reference point.

(c) With the head form at each contact point, and with the device in a vertical position if no contact point exists for a particular adjusted length, pivot the measuring device forward and downward through all arcs in vertical planes to 90° each side of the vertical longitudinal plane through the seating reference point, until the head form contacts an interior surface or until it is tangent to a horizontal point 1 inch above the seating reference point, whichever occurs first.

"Includes" means includes but is not limited to.

"Interior compartment door" means any door in the interior of the vehicle installed by the manufacturer as a cover for storage space normally used for personal effects.

"Longitudinal" or "longitudinally" means parallel to the longitudinal centerline of the vehicle.

"Motorcycle" means a motor vehicle with motive power having a seat or saddle for the use of the rider and designed to travel on not more than three wheels in contact with the ground.

"Motor-driven cycle" means a motorcycle with a motor that produces 5-brake horsepower or less.

"Multipurpose passenger vehicle" means a motor vehicle with motive power, except a trailer, designed to carry 10 persons or less which is constructed either on a truck chassis or with special features for occasional off-road operation.

"Open-body type vehicle" means a vehicle having no occupant compartment top or an occupant compartment top that can be installed or removed by the user at his convenience.

"Outboard designated seating position" means a designated seating position where a longitudinal vertical plane tangent to the outboard side of the seat cushion is less than 12 inches from the innermost point on the inside surface of the vehicle at a height between the seating reference point and the shoulder reference point (as shown in Fig. 1 of Federal Motor Vehicle Safety Standard No. 210) and longitudinally between the front and rear edges of the seat cushion.

"Overall vehicle width" means the nominal design dimension of the widest part of the vehicle, exclusive of signal lamps, marker lamps, outside rearview mirrors, flexible fender extensions, and mud flaps, determined with doors and windows closed and the wheels in the straight-ahead position.

"Parking brake" means a mechanism designed to prevent the movement of a stationary motor vehicle.

"Passenger car" means a motor vehicle with motive power, except a multipurpose passenger vehicle, motorcycle, or trailer designed for carrying 10 persons or less.

"Pelvic impact area" means that area of the door or body side panel adjacent to any outboard designated seating position which is bounded by horizontal planes 7 inches above and 4 inches below the seating reference point and vertical transverse planes 8 inches forward and 2 inches rearward of the seating reference point.

"Pole trailer" means a motor vehicle without motive power designed to be drawn by another motor vehicle and attached to the towing vehicle by means of a reach or pole, or by being boomed or otherwise secured to the towing vehicle, for transporting long or irregularly shaped loads such as poles, pipes, or structural members capable generally of sustaining themselves as beams between the supporting connections.

"School bus" means a bus that is sold, or introduced in interstate commerce, for purposes that include carrying students to and from school or related events, but does not include a bus designed and sold for operation as a common carrier in urban transportation.

"Seating reference point" means the manufacturer's design reference point which—

(a) Establishes the rearmost normal design driving or riding position of each designated seating position in a vehicle;

(b) Has coordinates established relative to the designed vehicle structure;

(c) Simulates the position of the pivot center of the human torso and thigh; and

(d) Is the reference point employed to position the two dimensional templates described in SAE Recommended Practice J826, "Manikins for Use in Defining Vehicle Seating Accommodations," November 1962.

"Semitrailer" means a trailer, except a pole trailer, so constructed that a substantial part of its weight rests upon or is carried by another motor vehicle.

"Service brake" means the primary mechanism designed to stop a motor vehicle.

"Speed attainable in 1 mile" means the speed attainable by accelerating at maximum rate from a standing start for 1 mile, on a level surface.

"Speed attainable in 2 miles" means the speed attainable by accelerating at a maximum rate from a standing start for 2 miles, on a level surface.

"Torso line" means the line connecting the "H" point and the shoulder reference point as defined in SAE Recommended Practice J787b, "Motor Vehicle Seat Belt Anchorage," September 1966.

"Trailer" means a motor vehicle with or without motive power, designed for carrying persons or property and for being drawn by another motor vehicle.

"Trailer converter dolly" means a trailer chassis equipped with one or more axles, a lower half of a fifth wheel and a drawbar.

"Truck" means a motor vehicle with motive power, except a trailer, designed primarily for the transportation of property or special purpose equipment.

"Truck tractor" means a truck designed primarily for drawing other motor vehicles and not so constructed to carry a load other than a part of the weight of the vehicle and the load so drawn.

"Unloaded vehicle weight" means the weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle, but without cargo, occupants, or accessories that are ordinarily removed from the vehicle when they are not in use.

"95th percentile adult male" means a person possessing the dimensions and weight of the 95th percentile adult male specified in Public Health Service Publication No. 1000, Series 11, No. 8, "Weight, Height, and Selected Body Dimensions of Adults."

#### § 571.4 Explanation of usage.

The word "any," used in connection with a range of values or set of items in the requirements, conditions, and procedures of the standards or regulations in this chapter, means generally the totality of the items or values, any one of which may be selected by the Administration for testing, except where clearly specified otherwise.

*Examples:* "The vehicle shall meet the requirements of S4.1 when tested at any point between 18 and 22 inches above the ground." This means that the vehicle must be capable of meeting the specified requirements at every point between 18 and 22 inches above the ground. The test in question for a given vehicle may call for a single test (a single impact, for example), but the vehicle must meet the requirement at whatever point the Administration selects, within the specified range.

"Each tire shall be capable of meeting the requirements of this standard when mounted on any rim specified by the manufacturer as suitable for use with that tire." This means that, where the manufacturer specifies more than one rim as suitable for use with a tire, the tire must meet the requirements with whatever rim the Administration selects from the specified group.

"Any one of the items listed below may, at the option of the manufacturer, be substituted for the hardware specified in S4.1." Here the wording clearly indicates that the selection of items is at the manufacturer's option.

#### § 571.5 Matter incorporated by reference.

(a) *Incorporation.* There are hereby incorporated, by reference into this Part, all materials referred to in any standard in Subpart B of this part that are not set forth in full in the standard. These materials are thereby made part of this regulation. Materials subject to change are incorporated as they are in effect on the date of adoption of this Part, unless the reference to them provides otherwise.

(b) *Availability.* The materials incorporated by reference, other than acts of Congress and matter published elsewhere in the *Federal Register*, are available as follows:

(1) *Standards of the Society of Automotive Engineers (SAE).* They are published by the Society of Automotive Engineers, Inc. Information and copies may be obtained by writing to: Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, Pennsylvania 15096.

(2) *Standards of the American Society for Testing and Materials.* They are published by the American Society for Testing and Materials. Information on copies may be obtained by writing to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania, 19103.

(3) *Standards of the American National Standards Institute.* They are published by the American National Standards Institute. Information and copies may be obtained by writing to: American National Standards Institute, 1430 Broadway, New York, New York 10018.

(4) *Data from the National Health Survey, Public Health Publication No. 1000, Series 11, No. 8.* This is published by the U.S. Department of Health, Education, and Welfare. Copies may be obtained for a price of 35 cents from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

All incorporated materials are available for inspection at the Docket Room, National Highway Traffic Safety Administration, 400 7th Street, S.W., Washington, D.C. 20590.

#### § 571.7 Applicability.

(a) *General.* Except as provided in paragraphs (c) and (d) of this section, each standard set forth in Subpart B of this part applies according to its terms to all motor vehicles or items of motor vehicle equipment the manufacture of which is completed on or after the effective date of the standard.

(b) *Chassis-cabs.* Chassis-cabs, as defined in 371.3(b), manufactured on or after January 1, 1968, shall meet all standards in effect on the date of manufacture of the chassis-cab as are applicable to the principal end use intended by its manufacturer except that where the chassis-cab is equipped with only part and not all of the items of lighting equipment referred to in standard No. 108, it need not meet such standards.

(REVOKED 36 F.R. 7055. EFFECTIVE: 4/14/71)

(c) *Military vehicles.* No standard applies to a vehicle or item of equipment manufactured for, and sold directly to, the Armed Forces of the United States in conformity with contractual specifications.

(d) *Export.* No standard applies to a vehicle or item of equipment in the circumstances provided in section 108(b) (5) of the Act (15 U.S.C. 1397 (b) (5)).

(e) *Combining and new used components.* When a new cab is used in the assembly of a truck, the truck will be considered newly manufactured for purposes of paragraph (a) of this section, the application of the requirements of this chapter, and the Act, unless the engine, transmission, and drive axle(s) (as a minimum) of the assembled vehicle are not new, and at least two of these components were taken from the same vehicle.

(f) *Combining new and used components in trailer manufacture.* When new materials are used in the assembly of a trailer, the trailer will be considered newly manufactured for purposes of paragraph (a) of this section, the application of the requirements of this chapter, and the Act, unless, at a minimum, the trailer running gear assembly (axle(s), wheels, braking and suspension) is not new, and was taken from an existing trailer—

(1) Whose identify is continued in the reassembled vehicle with respect to the Vehicle Identification Number; and

(2) That is owned or leased by the user of the reassembled vehicle.

#### **§ 571.8 Effective date.**

Notwithstanding the effective date provisions of the motor vehicle safety standards in this part, the effective date of any standard or amendment of a standard issued after September 1, 1971, to which firefighting vehicles must conform shall be, with respect to such vehicles, either 2 years after the date on which such standard or amendment is published in the Rules and Regulations section of the *Federal Register*, or the effective date specified in the notice, whichever is later, except as such standard or amendment may otherwise specifically provide with respect to firefighting vehicles.

#### **§ 571.9 Separability.**

If any standard established in this part or its application to any person or circumstance is held invalid, the remainder of the part and the application of that standard to other persons or circumstances is not affected thereby.

#### **§ 571.13 Labeling of chassis-cabs.**

Each chassis-cab manufactured on or after January 1, 1968, shall, at the time of sale, conspicuously display a label affixed by its manufacturer that—

(a) Identifies it as a chassis-cab and shows the date of manufacture;

(b) Identifies the Federal motor vehicle safety standards with which its manufacturer states the chassis-cab fully complied for the principal end uses of such vehicle; and

(c) States in substance that the chassis-cab may be used on the public highways for the purpose of transit between its manufacturer and subsequent manufacturers (including distribution incidental thereto) and for no other purpose, until such time as the chassis-cab complies with all Federal motor vehicle safety standards applicable to any end use of such vehicle. This provision does not relieve the manufacturer or shipper from any applicable requirement imposed upon such chassis-cabs by Federal, State, or local authority.

#### **Interpretations**

**General.** Compliance with Initial Federal Motor Vehicle Safety Standards is determined by actual date of manufacture, rather than model year designation.

#### **Mini-bikes.**

A number of persons have asked the Federal Highway Administrator to reconsider his February

4, 1969 interpretation of the National Traffic and Motor Vehicle Safety Act of 1966 concerning mini-bikes. In that interpretation, the Administrator concluded that mini-bikes are "motor vehicles" within the meaning of section 102(3) of the Act, and are regarded as "motorcycles" or "motor-driven cycles" under the Federal Highway Administration regulations. Under those regulations, motorcycles and motor-driven cycles must conform to Motor Vehicle Safety Standard No. 108, which imposes performance requirements relating to lamps, reflective devices, and associated equipment.

The primary basis for the conclusion of the February 4 interpretation, as stated therein, was that "[i]n the absence of clear evidence that as a practical matter a vehicle is not being, or will not be, used on the public streets, roads, or highways the operating capability of a vehicle is the most relevant fact in determining whether or not that vehicle is a motor vehicle under the Act . . ." It was stated that if examination of a vehicle's operating capability revealed that the vehicle is "physically capable (either as offered for sale or without major additions or modifications) of being operated on the public streets, roads, or highways, the vehicle will be considered as having been 'manufactured primarily for use on the public streets, roads, and highways'." It was also stated that a manufacturer would need to show substantially more than that it has advertised a vehicle as a recreational or private property vehicle or that use of the vehicle on a public roadway, as manufactured and sold, would be illegal in order to overcome a conclusion based on examination of the vehicle's operating capability.

Petitioners have urged the Administrator to abandon the operating capability test. They have argued that many vehicular types, such as self-propelled riding mowers, have an "operating capability" for use on the public roads and yet are obviously outside the class of vehicles which Congress subjected to safety regulation. True as that may be, the Administrator has decided to adhere to the view that the operating capability of a vehicle is an important criterion in determining whether it is a "motor vehicle" within the meaning of the statute. As the above-quoted portion of the February 4, 1969 interpretation states, however, the operating capability test is not reached if there is "clear evidence that as a practical matter the vehicle is not being used on the public streets,

roads, or highways. In the case of self-propelled riding mowers, golf carts, and many other similar self-propelled vehicles, such clear evidence exists.

It is clear from the definition of "motor vehicle" in section 102(3) of the Act\* that the purpose for which a vehicle is manufactured is a basic factor in determining whether it was "manufactured primarily for use on the public streets, roads, and highways." However, this does not mean that the proper classification of a particular vehicle is wholly dependent on the manufacturer's subjective state of mind. Instead, the Administrator intends to invoke the familiar principle that the purpose for which an act, such as the production of a vehicle, is undertaken may be discerned from the actor's conduct in the light of the surrounding circumstances. Thus, if a vehicle is operationally capable of being used on public thoroughfares and if in fact a substantial proportion of the consuming public actually uses it that way, it is a "motor vehicle" without regard to the manufacturer's intent, however manifested. In such a case, it would be incumbent upon a manufacturer of such a vehicle either to alter the vehicle's design, configuration, and equipment to render it unsuitable for on-road use or, by compliance with applicable motor vehicle safety standards, to render the vehicle safe for use on public streets, roads, and highways.

In borderline cases, other factors must also be considered. Perhaps the most important of these is whether state and local laws permit the vehicle in question to be used and registered for use on public highways. The nature of the manufacturer's promotional and marketing activities is also evidence of the use for which the vehicle is manufactured. Some relevant aspects of those activities are: (1) whether the vehicle is advertised for on-road use or whether the manufacturer represents to the public that the vehicle is not for use on public roads; (2) whether the vehicle is sold through retail outlets that also deal in conventional motor vehicles; and (3) whether the manufacturer affixes a label warning owners of the vehicle not to use it for travel over public roads.

\* " 'Motor vehicle' means any vehicle driven or drawn by mechanical power manufactured primarily for use on the public streets, roads, and highways, except any vehicle operated exclusively on a rail or rails." 15 U.S.C. 1391(3).

In the first instance, each manufacturer must decide whether his vehicles are manufactured primarily for use on the public streets, roads, and highways. His decision cannot be conclusive, however. Under the law, the authority to determine whether vehicles are subject to the provisions of the National Traffic and Motor Vehicle Safety Act is vested in the Secretary. As delegate of the Secretary, the Administrator will exercise that power in the light of all of the relevant facts and circumstances (including the manufacturer's declaration of his intent) with the objective of reducing the toll of injuries and deaths on the public highways.

Analysis of the available data about mini-bikes, including the contents of petitions for reconsideration of the February 4, 1969 interpretation, has convinced the Administrator that, for the most part, mini-bikes should not be considered motor vehicles under the above criteria. Mini-bikes do have an operating capability for use on public roads. It now appears that incidents of their actual operation on public streets, roads, and highways, while undoubtedly extant, are comparatively rare. What is more important, their use and registration for use on public thoroughfares is precluded by the laws of virtually every jurisdiction, unless the mini-bike is equipped with lamps, reflective devices, and associated equipment of the sort that Safety Standard No. 108 requires. Most manufacturers of mini-bikes do not advertise or otherwise promote them as being suitable for use on public roads, and some actually attach a label to their vehicles, warning against on-road use. Those manufacturers do not furnish retail purchasers with the documentation needed to register, title, and license the vehicles for use on public roads under the relevant State laws. Finally, mini-bikes are commonly sold to the public through retail outlets that are not licensed dealers in motor vehicles.

Accordingly, so long as the great majority of the States do not permit the registration of mini-bikes for use on the public highways and streets, and until such time as there is clear evidence that mini-bikes are being used on public streets to a significant extent, the Administrator is of the view that, at a minimum, persons who manufacture mini-bikes are not manufacturers of "motor vehicles" within the meaning of the National Traffic and Motor Vehicle Safety Act of 1966 if they (1) do not equip them with devices and accessories that



render them lawful for use and registration for use on public highways under state and local laws; (2) do not otherwise participate or assist in making 'he vehicles lawful for operation on public roads (as by furnishing certificates of origin or other title documents, unless those documents contain a statement that the vehicles were not manufactured for use on public streets, roads, or highways); (3) do not advertise or promote them as vehicles suitable for use on public roads; (4) do not generally market them through retail dealers on motor vehicles; and (5) affix to the mini-bikes a notice stating in substance that the vehicles were not manufactured for use on public streets, roads, or highways and warning operators against such use. Cases of manufacturers who fulfill some, but not all, of the above criteria will be dealt with individually under those criteria and such others as may be relevant.

A manufacturer of mini-bikes is, of course, at liberty to design and construct his products so that they conform to the provisions of the motor vehicle safety standards that are applicable to motorcycles and thereby to manufacture motor vehicles within the meaning of the National Traffic and Motor Vehicle Safety Act.

In consideration of the foregoing, the petitions for reconsideration of the February 4, 1969 interpretation relating to mini-bikes are granted to the extent set forth above, and that interpretation is withdrawn.

Issued on Sept. 30, 1969.

#### **Limits on State Enforcement Procedures**

The Japan Automobile Manufacturers Association has brought to the attention of the NHTSA, in a petition for reconsideration of Standard No. 209, some leadtime problems that may be caused by the safety standard enforcement practices of some of the States. These States require manufacturers to submit samples of motor vehicle equipment covered by one of the standards, such as seat belt assemblies, to a State-authorized test laboratory. The test reports from the laboratory are then submitted to a State agency or an outside agency such as the American Association of Motor Vehicle Administrators, which issues an "approval" to the manufacturer. The problem arises in cases where the State does not permit the manufacturer to sell the equipment in that State until the approval is received. If the leadtime between the issuance of a

fairly short, the manufacturer may not have time to prepare and submit samples and to obtain the State-required approval before the effective date of the standard. Thus, the manufacturer may be prohibited from selling his product in the State on and after the effective date, even though it fully complies with all applicable Federal standards and regulations.

The substantive relationship between Federal and State safety standards was established by Congress in section 103(d) of the National Traffic and Motor Vehicle Safety Act, which provides:

"Whenever a Federal motor vehicle safety standard established under this title is in effect, no State or political subdivision of a State shall have any authority either to establish, or to continue in effect, with respect to any motor vehicle or item of motor vehicle equipment any safety standard applicable to the same aspect of performance of such vehicle or item of equipment which is not identical to the Federal Standard."

Although this section makes it clear that State standards must be "identical" to the Federal standards to the extent of the latter's coverage, the procedural relationship between State and Federal enforcement of the standard is not explicitly stated in the Act. It has been the position of this agency that the Act permits the States to enforce the standards, independently of the Federal enforcement effort, since otherwise there would have been no reason for the Act to allow the States to have even "identical" standards. The question raised by the JAMA petition is to what extent the States may utilize an enforcement scheme that differs from the Federal one established by the Act.

The basic structure of the Act places the burden of conformity to the standards on the manufacturers, who must exercise due care to determine that all their products comply with applicable standards (§§ 103, 108, 15 U.S.C. 1392, 1397). They must certify each vehicle and item of covered equipment as conforming to the standards (§ 114, 15 U.S.C. 1403). No prior approval of a manufacturer's products is provided for or contemplated by the Act. The NHTSA does not issue such approvals, but tests the products after they come onto the market to determine whether they conform. Thus, the effective date of a standard is established on the basis of the agency's judgment

as to the length of time it will take manufacturers to design and prepare to produce a vehicle or item of equipment, and is not intended to allow time for obtaining governmental approval after production begins.

In this light, a State requirement of obtaining prior approval before a product may be sold conflicts with the Federal regulatory scheme. The legislative history does not offer specific guidance on the question, except for general statements such as the following by Senator Magnuson:

"Some States have more stringent laws than others, but concerning the car itself we must have uniformity. That is why the bill suggests to States that if we set a minimum standard, *a car complying with such standard should be admitted to all States.*" 112 Cong. Rec. 13585, June 24, 1966.

"[W]e have provided in the bill for foreign cars, that they must comply with the standards; and *we have even allowed them to come in under a free-port arrangement*, where, if they are not in compliance, dealers can bring them up to the standard." 12 Cong. Rec. 13587, June 24, 1966. (Emphasis supplied.)

It is true that Senator Magnuson in the above statements was not directly considering the question of State enforcement. But Congress does not appear to have contemplated the existence of State procedures that would restrict the free movement of vehicles and equipment, or place significant burdens on the manufacturers, in areas covered by the Federal standards, beyond those imposed by the standards themselves.

It is the position of this agency, therefore, that under the Act and the regulatory scheme that has been established by its authority a State may not regulate motor vehicles or motor vehicle equipment, with respect to aspects of performance covered by Federal standards, by requiring prior State approval before sale or otherwise restricting the manufacture, sale, or movement within the State of products that conform to the standards. This interpretation does not preclude State enforcement of standards by other reasonable procedures that do not impose undue burdens on the manufacturers, including submission of products for approval within reasonable time limits, as long as manufacturers are free to market their products while the procedures are being followed, as they are under the Federal scheme.

Issued on May 13, 1971.

## **PREAMBLE TO FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 101-80**

### **Controls and Displays**

**(Docket No. 1-18; Notice 131)**

*Action:* Final rule.

*Summary:* This notice expands the application of the standard for the location, identification, and illumination of driver controls and displays (e.g., gauges and meters) by establishing requirements for additional controls and by introducing selected displays which, if furnished, must be located and illuminated under specified conditions and identified by a specified symbol and/or selected word. The purpose of the requirements is to encourage international standardization and harmonization of controls and displays in order to convey information more quickly to drivers and with less chance of human error. This will reduce the interval during which a driver's attention is diverted from the roadway to his controls and displays, thus decreasing the possibility of an accident.

*Effective date:* September 1, 1980.

*For further information contact:*

Mr. Nelson Erickson, Office of Motor Vehicle Programs, 400 Seventh Street, S.W., Washington, D.C. 20590, 202-426-2155.

*Supplementary information:* This notice establishes new requirements for the location, identification, and illumination of controls and displays in passenger cars, multipurpose passenger vehicles, trucks, and buses. The new rule is designated 49 CFR 571.101-80, *Controls and Displays*, and becomes effective September 1, 1980. The existing rule on this subject, 49 CFR 571.101, *Control Location, Identification, and Illumination*, is amended to permit, at the vehicle manufacturer's option, compliance with that standard or the new requirements of Standard No. 101-80 before September 1, 1981.

On October 21, 1976, the National Highway Traffic Safety Administration published (41 FR 46460) a notice proposing to update the existing controls and displays standard (Standard 101) by incorporating all pertinent amendments and interpretations published since the original issuance on January 31, 1967. It also proposed to consolidate the control and display requirements of other standards in one regulation. This notice takes final action on that proposal. All comments were considered and the major ones are discussed below.

The notice issued in October 1976 proposed that most controls and displays be required to be identified with specified symbols which are internationally standardized. Words would have been permitted in addition to the symbols, although the choice of words would have been limited to ensure uniformity. Specified words would have been required for those controls and displays for which no symbols had been established.

The rationale behind the proposed requirement of symbols was that they can convey information more quickly and with less chance of human error than words. This is particularly true with respect to the large foreign language speaking population of this country. By simplifying the identification of controls and displays, the standard should reduce the problems resulting from driver's attention being diverted from the roadway to his controls and displays. An individual benefit cited in the proposed notice is that manufacturers who sell vehicles both in and outside of the United States could realize significant cost savings by utilizing internationally standardized symbols.

The National Motor Vehicle Advisory Council and the Vehicle Equipment Safety Commission did not take positions on the proposal. The majority of commenters favored the use of symbols in the interest of international standardization and harmonization. The final rule, therefore, requires the use of symbols and allows the use of additional words if the manufacturer so chooses.

One of the major concerns of manufacturers commenting was that the proposed rule would inhibit the design and development of electronic "readout" panels which can effectively present to the driver specific information concerning vehicle and environmental conditions affecting safety. These displays are currently capable of exhibiting information and warnings with word messages and not with symbols. The optional use of symbols or words will permit the continued development of informational readout displays. The NHTSA supports the development of more efficient and effective control and display information systems and has, consequently, permitted informational readout displays to be identified by words only so as to not impede the development of electronic displays.

The symbols that are permitted by this rule to identify controls and displays are those developed by the International Standards Organization (ISO). By specifying symbols adopted by the ISO, this agency is facilitating the achievement of an international uniform identification system. New symbols for five controls and eight displays are added to those presently designated in the existing standard. Additional symbols will be added when the NHTSA determines which ones will be readily recognizable, thus reducing driver diversion.

Some commenters noted that a few of the symbols such as the clearance lamp symbol, deviate slightly from those adopted by the ISO. The NHTSA, while basing its symbols on those developed by the ISO, is not specifying ISO symbols which it determines will not adequately convey the intended message. Thus, the symbols proposed in the October notice are adopted, even though some of them deviate from the ISO symbols. Some existing ISO symbols are not included in this final rule due to the fact that additional data are needed on their recognizability. When such data have been accumulated

and analyzed, the NHTSA will determine whether the symbols should be added to Standard 101-80.

A few commenters suggested the deletion of the symbols for the turn signal and high beam telltales because these have long been identified by color and operate only after deliberate operation by the driver. It is the belief of the NHTSA that these symbols should be retained. They are necessary to educate new drivers, to act as reminders to those who drive infrequently, and to further the uniformity and harmonization of symbols. It should be noted that the turn signal was inadvertently omitted from Table I. It was, however, listed in S5.1 as one of the hand-operated controls and discussed in the preamble.

Another question that was raised was whether the manufacturers could use symbols that deviate from those designated in the standard. As stated in previous notices on controls and displays, minor deviations are allowed, as long as the symbol used substantially resembles that specified in the standard.

Several commenters raised concerns about the color of various symbols. The hazard warning telltale was inadvertently designated as green in the proposed rule. That color should be red and the final rule has been corrected to reflect this. Several commenters mentioned that because of the technology of light emitting diodes, telltales are technologically feasible only in yellow, green, or red. One commenter noted that neon gas discharge displays emit a characteristic neon red-orange light, rather than red. These displays rate high in intensity, durability, and reliability and are low in cost. Because of these factors, the final rule has been amended so that a designation of the color red can be either red or red-orange and the color blue may be either blue or blue-green.

Many of those commenting objected to the prohibition of any words other than the words specified in the table. The NHTSA has decided, to permit the manufacturer to use additional words, but only for clarification. For example, the manufacturer may combine an instruction with the specified identification, such as "pull to defrost," or it may use another word for the purpose of clarity, such as "unleaded fuel only."

The manufacturer will be permitted to describe the "automatic vehicle speed system" in words of his choosing because over the years customers have become used to the various descriptors, such as "cruise control" and "speed control," which manufacturers have used. The NHTSA does not believe that either descriptor is superior to the other. In addition, the manufacturer will be permitted to describe the "automatic gear position" by words of his choosing since these controls are conspicuous and automatic transmissions are not uniform, some not providing a park (P) position and others with additional gears. In response to one question, it should be noted that "automatic gear position" by virtue of its being automatic is not a hand-operated control as referred to in S5.3.1.

In accordance with the suggestions of commenters, the final rule adopts the use of "volts" or "charge" in addition to "amp" for the electrical charge telltale and gauge. Many other alternate words were suggested, but the NHTSA believes that the ones adopted in the final rule best convey the appropriate information. With the allowance of additional words, objection to those required should no longer remain.

Manufacturers of vehicles over 10,000 pounds gross vehicle weight rating (GVWR) objected to the application of this rule to their vehicles. They emphasized that with the increased number of gauges and expanded level of display information utilized by such vehicles, the application of this rule would result in panels that are a "hodgepodge of symbols." It was also asserted that this application would necessitate redesign of the instrument panels, possibly increasing driver diversion instead of decreasing it. Most heavy duty trucks comply with SAE recommendations for the location standardization of controls and displays in the operator's compartment. The operators of vehicles in the heavy duty category are professionals who are familiar with these standardized locations and do not need to read a legend or symbol. In addition, heavy duty trucks are not subject to yearly redesign or model changes. Because of these concerns, the agency has decided that vehicles over 10,000 pounds GVWR need not meet display requirements of this standard. They must, however, meet the control requirements.

A large number of commenters requested that the location of the controls and displays be uniform. An additional request was made to require common carriers to maintain illumination devices on all equipment. While these recommendations are noteworthy, they are not the subject of this rulemaking action, but will be considered for possible future rulemaking.

In the October proposal, it was specified that the control identification be placed on or adjacent to the particular control. The display identification, on the other hand, was to be placed on the display, unless the exposed portion of the lens was in the shape of the required identification. The proposal also stated that the identification of the high-beam indicator and of any gauge could be placed on or adjacent to the display that it identified. In response to the comments that identification could be met equally well by placing the symbol adjacent to the telltale, the NHTSA has decided to leave it up to the manufacturer to determine whether the identification should be placed directly on the control or display or whether an adjacent position would be satisfactory. The final rule does require that the identification be visible to the driver. In response to one commenter, the NHTSA does recognize that the spokes of the steering wheel may at times interfere with the visibility of the controls and displays. The visibility requirement will be satisfied even if the driver needs to make minimal movements toward the front, to the left, and to the right to see the identifications. The NHTSA has determined that these minor necessary movements will have virtually no effect on the safe operation of the vehicle.

The designation of "Km" for kilometres has been corrected in the final rule to read "km". Any odometer that records distance in kilometres must be labeled "KILOMETRES" or "km" so as to avoid confusion. The October 1976 proposal provided an option regarding English or metric units for labeling speedometers. Any proposal setting forth alternatives implicitly carries with it the possibility that one or more of the alternatives may become mandatory. In light of this and in light of the decision in Federal Motor Vehicle Safety Standard No. 127, 43 FR 10919, to require speedometers to record speed in both English and in metric, this rule

requires that both speed scales be labeled so as to avoid confusion. Therefore, for dual readings of MPH and km/h on speedometers the manufacturer is required to clearly label the appropriate display.

The proposed effective date for this rule was September 1, 1979. Due to the numerous comments received, indicating that more lead time would be desirable in order to permit the conversion of controls and displays to coincide with routine redesign of various vehicle models, an effective date of September 1, 1980, has been adopted.

The primary authors of this notice are Mr. Nelson Erickson, Office of Motor Vehicle Pro-

grams, and Ms. Kathleen DeMeter, Office of the Chief Counsel.

In consideration of the foregoing, Part 571 of Title 49 of the Code of Federal Regulations is amended. . . .

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on June 21, 1978.

Joan Claybrook  
Administrator

**43 F.R. 27541**  
**June 26, 1978**

# **PREAMBLE TO AN AMENDMENT TO FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 101-80**

## **Control and Display (Docket 1-18; Notice 18)**

**ACTION:** Interpretative amendment.

**SUMMARY:** Standard No. 101-80, Controls and Displays, requires various safety-related controls to be identified by specific symbols. The standard requires identification of the turn signal control unless it is the only control on the left hand side of the steering column. In addition to the turn signal control, some vehicles have additional controls, such as a lever to adjust the position of a tilting steering wheel, on the left hand side of the column. This notice clarifies the identification requirement to provide that a turn signal control does not have to be identified if it is the topmost control on the left side of the steering column, the traditional position for such controls (i.e., the closest control to the steering wheel).

**EFFECTIVE DATE:** Date of Publication in the October 30, 1980 *Federal Register*.

**FOR FURTHER INFORMATION CONTACT:**

John Carson, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-2715)

**SUPPLEMENTARY INFORMATION:** On June 26, 1978, the agency published a final rule establishing Standard No. 101-80, Controls and Displays (43 FR 27541). The standard, which went into effect on September 1, 1980, established new identification and illumination requirements for controls and displays in passenger cars, multipurpose passenger vehicles, trucks and buses.

One provision of the standard requires the turn signal control to be identified by a specific symbol, two horizontal arrowheads, placed on or adjacent to the control. American Motors Corporation (AMC) filed a petition for reconsideration arguing

that the turn signal identification requirement was unnecessary. AMC said that the location and operation of column-mounted turn signal control levers has been standardized by industry practice and is well known to drivers. In response to the AMC petition, NHTSA amended the standard to delete the identification requirement for vehicles in which the turn signal control is the only lever mounted on the left side of the steering column. The agency explained that it was taking this action because the turn signal control has become standardized at that location and there have been no reported crashes caused by the driver's unfamiliarity with the position and use of the turn signal control (Sept. 27, 1979, 44 FR 55580).

Subsequent to the publication of the response to the AMC petition for reconsideration, General Motors (GM) wrote the agency concerning an interpretation of the modified requirements. GM said that on its vehicles equipped with tilt steering columns, there is a tilt mechanism release lever located on the same side of the steering column as the turn signal control lever. GM said that the tilt release lever is "shorter and significantly farther from the steering wheel than the turn signal lever and consequently is out of the immediate finger tip reach of a hand remaining on the steering wheel." GM said that the tilt wheel mechanism is a customer convenience, not a safety feature.

GM argued that its understanding of the agency's interpretation of the modified identification requirement was that the turn signal control only had to be identified "if it is not located and operated in what has become to be considered the standardized manner or if another functional control lever related to vehicle safety could be easily confused with it." GM said that based on that interpretation, it believed that "the presence or absence of a tilt column release lever does not

determine whether the turn signal control must be identified." To assist all interested parties in interpreting the requirement, GM requested the agency to consider revising the language of the standard to clarify the agency's intent.

The purpose of this notice is to make an interpretative amendment to Standard No. 101-80 to clarify the circumstances under which the turn signal control must be identified. As an interpretative amendment, there is no need for notice and comment.

The purpose of the identification requirement is to make it easier for the driver to quickly and correctly locate various safety-related vehicle controls. One of the controls that has been standardized in its location and operation for a number of years is the turn signal control. In every car, that control is mounted on the left hand side of the steering column, is located so that it is the control closest to the rim of the steering wheel, and is operated in a standardized manner, up for right, down for left. Since the turn signal control has been standardized for such a long time, it is not necessary for the control to include an identifying symbol.

As long as the turn signal control is in its standardized location, it will be instantly recognized by drivers even if there are other controls mounted on the same side of the column, farther away from the rim of the steering wheel. Thus, to clarify the identification requirements, the agency is amending the standard. The amendment provides that if the turn signal control is mounted on the left side of the steering column, in a plane essentially parallel to the steering wheel, it need not be identified if it is the control mounted closest to the rim of the steering wheel.

In consideration of the foregoing, Standard No. 101-80 (49 CFR 571.101-80) is revised accordingly.

Issued on October 22, 1980.

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Frank Berndt  
Acting Administrator

45 FR 71803  
October 30, 1980



## FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 101-80

### Controls and Displays

(Docket No. 1-18; Notice 13)

**S1. Scope.** This standard specifies requirements for the location, identification, and illumination of motor vehicle controls and displays.

**S2. Purpose.** The purpose of this standard is to ensure the accessibility and visibility of motor vehicle controls and displays and to facilitate their selection under daylight and nighttime conditions, in order to reduce the safety hazards caused by the diversion of the driver's attention from the driving task, and by mistakes in selecting controls.

**S3. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses.

#### **S4. Definitions.**

"Telltale" means a display that indicates, by means of a light-emitting signal, the actuation of a device, a correct or defective functioning or condition, or a failure to function.

"Gauge" means a display that is listed in S5.1 or in Table 2 and is not a telltale.

"Informational readout display" means a display using light-emitting diodes, liquid crystals, or other electro illuminating devices where one or more than one type of information or message may be displayed.

**S5. Requirements.** Each passenger car, multipurpose passenger vehicle, truck, and bus manufactured with any control listed in S5.1 or in column 1 of Table 1, and each passenger car, multipurpose passenger vehicle and truck or bus less than 10,000 pounds GVWR with any display listed in S5.1 or in column 1 of Table 2,

shall meet the requirements of this standard for the location, identification, and illumination of such control or display.

**S5.1 Location.** Under the conditions of S6, each of the following controls that is furnished shall be operable by the driver and each of the following displays that is furnished shall be visible to the driver. Under conditions of S6, telltales and informational readout displays are considered visible when activated.

#### HAND-OPERATED CONTROLS

- (a) Steering wheel.
- (b) Horn.
- (c) Ignition.
- (d) Headlamp.
- (e) Tail lamp.
- (f) Turn signal.
- (g) Illumination intensity.
- (h) Windshield wiper.
- (i) Windshield washer.
- (j) Manual transmission shift lever, except transfer case.
- (k) Windshield defrosting, and defogging system.
- (l) Rear window defrosting and defogging system.
- (m) Manual choke.
- (n) Driver's sun visor.
- (o) Automatic vehicle speed system.
- (p) Highbeam.
- (q) Hazard warning signal.
- (r) Clearance lamps.
- (s) Hand throttle.
- (t) Identification lamps.

## FOOT-OPERATED CONTROLS

- (a) Service brake.
- (b) Accelerator.
- (c) Clutch.
- (d) Highbeam.
- (e) Windshield washer.
- (f) Windshield wiper.

## DISPLAYS

- (a) Speedometer.
- (b) Turn signal.
- (c) Gear position.
- (d) Brake failure warning.
- (e) Fuel.
- (f) Engine coolant temperature.
- (g) Oil.
- (h) Highbeam.
- (i) Electrical Charge.

### S5.2 Identification.

**S5.2.1** Vehicle controls shall be identified as follows:

(a) Except as specified in S5.2.1(b), any hand-operated control listed in column 1 of Table 1 that has a symbol designated in column 3 shall be identified by that symbol. Such a control may, in addition, be identified by the word or abbreviation shown in column 2. Any such control for which no symbol is shown in Table 1 shall be identified by the word or abbreviation shown in column 2. Additional words or symbols may be used at the manufacturer's discretion for the purpose of clarity. The identification shall be placed on or adjacent to the control. The identification shall, under the conditions of S6, be visible to the driver and, except as provided in S5.2.1.1 and S5.2.1.2, appear to the driver perceptually upright.

(b) S5.2.1(a) does not apply to a turn signal control which is operated in a plane essentially parallel to the face plane of the steering wheel in its normal driving position and which is located on the left side of the steering column so that it is the control on that side of the column nearest to the steering wheel face plane.

**S5.2.1.1** The identification of a headlamp and tail lamp control that adjusts control and display illumination by means of rotation, or of any other rotating control that does not have an off position, need not appear to the driver perceptually upright.

**S5.2.1.2** The identification of a rotating control other than one described by S5.2.1.1 shall appear to the driver perceptually upright when the control is in the off position.

**S5.2.2** Identification shall be provided for each function of any automatic vehicle speed system control and any heating and air conditioning system control, and for the extreme positions of any such control that regulates a function over a quantitative range. If this identification is not specified in Tables 1 or 2, it shall be in word form unless color coding is used. If color coding is used to identify the extreme positions of a temperature control, the hot extreme shall be identified by the color red and the cold extreme by the color blue.

**Example 1** A slide lever controls the temperature of the air in the vehicle heating system over a continuous range, from no heat to maximum heat. Since the control regulates a single function over a quantitative range, only the extreme positions require identification.

**Example 2** A switch has three positions, for heat, defrost, and air conditioning. Since each position regulates a different function, each position must be identified.

**S5.2.3** Except for informational readout displays, any display located within the passenger compartment and listed in column 1 of Table 2 that has a symbol designated in column 4, shall be identified by that symbol. Such display may, in addition be identified by the word or abbreviation shown in column 3. Any such display for which no symbol is provided in Table 2 shall be identified by the word or abbreviation shown in column 3. Informational readout displays may be identified by the symbol designated in column 4 of Table 2 or by the word or abbreviation shown in column 3. Additional words or symbols may be used at the manufacturer's discretion for the purpose of clarity. The identification required or permitted by this section shall be placed on or adjacent to the display that it identifies. The identification of any display shall, under the conditions of S6, be visible to the driver and appear to the driver perceptually upright.

### S5.3 Illumination.

**S5.3.1** Except for foot-operated controls or hand-operated controls mounted upon the floor, floor console, or steering column, or in the wind-

shield header area, the identification required by § 5.2.1 or § 5.2.2 of any control listed in column 1 of Table 1 and accompanied by the word "yes" in the corresponding space in column 4 shall be capable of being illuminated whenever the headlights are activated. However, control identification for a heating and air-conditioning system need not be illuminated if the system does not direct air directly upon windshield. If a gauge is listed in column 1 of Table 2 and accompanied by the word "yes" in column 5, then the gauge and its identification required by § 5.2.3 shall be illuminated whenever the ignition switch and/or the headlamps are activated. Controls, gauges, and their identifications need not be illuminated when the headlamps are being flashed. A telltale shall not emit light except when identifying the malfunction or vehicle condition for whose indication it is designed or during a bulb check upon vehicle starting.

**S5.3.2** Except for informational readout displays, each discrete and distinct telltale shall be of the color shown in column 2 of Table 2. The identification of each telltale shall be in a color that contrasts with the lens, if a telltale with a lens is used. Any telltale used in conjunction with a gauge need not be identified. The color of informational readout displays will be at the option of the manufacturer.

**S5.3.3** Light intensities for controls, gauges, and their identification shall be continuously variable from: (a) a position at which either there is no light emitted or the light is barely discernible to a driver who has adapted to dark ambient roadway conditions to (b) a position providing illumination sufficient for the driver to identify the control or display readily under conditions of reduced visibility. Light intensities for informational readout systems shall have at least two values, a higher one for day, and a lower one for nighttime that is provided in the passenger compartment when and only when the headlights are activated shall also be variable in a manner that complies with this paragraph. The light intensity of each telltale shall not be variable and shall be such that, when activated, that telltale and its identification are visible to the driver under all daytime and nighttime conditions.

**S6. Conditions.** The driver is restrained by the crash protection equipment installed in accordance with the requirements of § 571.208 of this part (Standard No. 208), adjusted in accordance with the manufacturer's instructions.

Joan Claybrook  
Administrator

43 F.R. 27541  
June 26, 1978



## MOTOR VEHICLE SAFETY STANDARD NO. 102

### Transmission Shift Lever Sequence, Starter Interlock, and Transmission Braking Effect— Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses

**S1. Purpose and scope.** This standard specifies the requirements for the transmission shift lever sequence, a starter interlock, and for a braking effect of automatic transmissions, to reduce the likelihood of shifting errors, starter engagement with vehicle in drive position, and to provide supplemental braking at speeds below 25 miles per hour.

**S2. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses.

#### **S3. Requirements.**

##### **S3.1 Automatic transmissions.**

**S3.1.1 Location of transmission shift lever positions on passenger cars.** A neutral position shall be located between forward drive and reverse drive positions. If a steering-column-mounted transmission shift lever is used, movement from neutral position to forward drive position shall be clockwise. If the transmission shift lever sequence includes a park position, it shall be lo-

cated at the end, adjacent to the reverse drive position.

**S3.1.2 Transmission braking effect.** In vehicles having more than one forward transmission gear ratio, one forward drive position shall provide a greater degree of engine braking than the highest speed transmission ratio at vehicle speeds below 25 miles per hour.

**S3.1.3 Starter interlock.** The engine starter shall be inoperative when the transmission shift lever is in a forward or reverse drive position.

##### **S3.2 Automatic and manual transmissions.**

Identification of shift lever positions of automatic transmissions, and of the shift lever pattern of manual transmissions, except three forward speed manual transmissions having the standard "H" pattern, shall be permanently displayed in view of the driver.

32 F.R. 2410  
February 3, 1967



# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 103**

## **Windshield Defrosting and Defogging Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks and Buses**

**(Docket Nos. 9, 1-12)**

Motor Vehicle Safety Standard No. 103 (32 F.R. 2410) requires that each passenger car and multipurpose passenger vehicle manufactured for sale in the Continental United States be provided with a windshield defrosting and defogging system. A proposal to amend section 371.21 of Part 271, Federal Motor Vehicle Safety Standards, by amending Standard No. 103, was published in the *Federal Register* on December 28, 1967 (32 F.R. 20867).

Interested persons have been afforded an opportunity to participate in the making of the amendment. Their comments, as well as other available information, have been carefully considered.

The purpose of the amendment is to increase driver visibility, and thereby enhance safe vehicle performance, by (1) adding test conditions and performance requirements for passenger car defrosting and defogging systems; and (2) broadening the standard's application to cover trucks and buses, which were not subject to the initial standard. In addition, the standard was modified to improve its clarity.

Paragraph S4.3 in the notice of proposed rulemaking required testing of passenger car windshield defrosting and defogging systems in accordance with the test conditions specified in paragraph 4 of SAE Recommended Practice J902, August 1964. Several comments asked that this requirement be modified to permit optional use of the test conditions set out in paragraph 4 of SAE Recommended Practice J902a, March 1967, a revised version of the Recommended Practice. The Administrator has determined that there are only minor differences between the test equipment, instrumentation, conditions and procedures in paragraphs 4.1 through 4.4.7 of these

two versions, and that these minor differences do not affect the level of safety attained with the use of either one. Accordingly, S4.3 of the notice has been changed to permit the use of the demonstration procedures described in paragraphs 4.1 through 4.4.7 of either SAE Recommended Practice J902 or SAE Recommended Practice J902a.

Another feature of paragraph S4.3 which evoked comments was its provision for use of the test procedures in section 4 of Recommended Practice J902 to the extent they are "applicable to" the particular system being tested. Any possible ambiguity that might appear upon superficial examination of the quoted words disappears when this requirement is read in conjunction with the operative provisions of section 4 of the SAE Recommended Practices. Section 4 makes reference to certain components that are not incorporated in every passenger car (e.g. defroster blowers). The use of the section 4 test procedures is restricted to those procedures "applicable to" the particular passenger car system being tested to make it clear that procedures which, by their terms, apply to components that are not a part of the car being tested need not be complied with.

Three comments asked that paragraph S4.2 of the standard be changed to permit optional use of the defrosted area and defrosting time requirements prescribed in section 3 of SAE Recommended Practice J902a in lieu of those set forth in section 3 of Recommended Practice J902. In the notice of proposed rulemaking, paragraph S4.2 incorporated, with minor modifications, the defrosted area and defrosting time requirements of Recommended Practice J902. Comparison of the two versions of the SAE Recommended Practice reveals that there are great differences between the areas and times

prescribed by J902 and those prescribed by J902a. The requests for a change in paragraph S4.2 acknowledged that compliance with one procedure is not necessarily more difficult than compliance with the other. The submissions did not indicate that adherence to the J902 requirements would impose any significant burden or would be impracticable in any sense. In view of the absence of sufficient substantiation to justify changing the standard, paragraph S4.2 has not been modified to allow alternative defrosted area and defrosting time requirements.

One comment requested that the standard be changed to allow 5 minutes more to meet the defrosted area requirements of the critical or "C" area. It was said that reasonable performance tolerances should be taken into account, and that, therefore, the requirement of paragraph 3.1 of SAE Recommended Practice J902, as adopted in modified form in paragraph S4.2 of the standard, that the "C" area must be 80 percent defrosted after 20 minutes of operation should be changed to allow manufacturers 25 minutes to attain the 80 percent defrosted goal. Such a modification would permit a significant reduction of the defrosting performance of defrosting and defogging systems and this, in turn, would be contrary to the interest of safety. While it is true that variations in such things as the performance of the thermostat and the outlet nozzle will affect the system's capability to defrost a given windshield area within a stated time, there

is no apparent reason why it is impracticable to design and construct the system so that, at a minimum performance level, it will comply with the requirements of paragraph S4.2. For these reasons, the Administrator has rejected this request for modification of the standard.

Many comments submitted suggestions that went beyond the scope of the notice. For example, submissions that discussed the problems of establishing performance requirements for defrosting and defogging systems on multipurpose passenger vehicles, trucks, and buses were received. These, and other comments of this nature, will be considered in connection with future rulemaking action.

In consideration of the foregoing, § 371.21 of Part 371, Federal Motor Vehicle Safety Standards, is amended, effective January 1, 1969, by amending Motor Vehicle Safety Standard No. 103 . . . .

This amendment is made under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority of April 24, 1968.

Issued in Washington, D. C. on April 24, 1968.

Lowell K. Bridwell,  
Federal Highway Administrator.

**33 F.R. 6468**  
**April 27, 1968**



# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 103** **Windshield Defrosting and Defogging Systems**

**(Docket No. 73-6; Notice 2)**

The purpose of this notice is to amend Motor Vehicle Safety Standard No. 103, *Windshield Defrosting and Defogging Systems*, to revise the wind test condition.

On March 20, 1973, the National Highway Traffic Safety Administration published a notice (38 F.R. 7339) proposing a change in the standard's wind velocity test condition which would clarify the NHTSA's intent that the performance requirements be met at all levels within the specified wind speed range. The present provision specifying that "the wind velocity may not exceed 5 mph" may be interpreted by manufacturers as requiring compliance at only one point within the range. Such an interpretation could result in enforcement problems if the NHTSA discovered a failure to comply when testing a vehicle at one point within the range while the manufacturer had attained compliance during testing at another point within the specified wind speed range. Perpetuation of this type of enforcement situation might retard the development of complying vehicle systems and undermine the level of performance the NHTSA intends to accomplish. Therefore, the NHTSA proposed in its March 20, 1973, notice that the standard specify that the wind velocity test condition be at any level from 0 to 2 mph. Reading this requirement together with the interpretive provisions of § 571.4, the vehicle would be required to be capable of complying with the standard when the wind velocity is at any speed within that range. This would prevent any discrepancy between the manufacturers' and the NHTSA's conception of what the standard actually requires.

Several comments submitted in response to the proposal to revise the wind speed test condition asserted that wind speeds cannot be accurately measured below 2 mph, and therefore the requirement should remain unchanged. This objection lacks merit, since the standard only requires that a vehicle be *capable* of complying with the standard at wind speeds from 0 to 2 mph. A manufacturer may generally conduct his testing at higher wind speeds to determine compliance, since the greater the wind speed, the more difficult it is to defrost the windshield within the specified time span.

The March 20, 1973, notice also proposed that the test chamber temperature sensor be located in a position not substantially affected by the heat from the engine. Comments from Ford and General Motors, submitted in response to this aspect of the proposal, objected to the proposed temperature location as unobjective and ambiguous and suggested establishment of a more specific location. The NHTSA is in tentative agreement with commenters' suggestion and is proposing in a separate notice issued today an exact location for the temperature sensor.

In consideration of the foregoing, in § 4.3 of 49 CFR § 571.103, Motor Vehicle Safety Standard No. 103, paragraph (g) is amended. . . .

*Effective date:* September 1, 1975.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on March 17, 1975.

James B. Gregory  
Administrator

**40 F.R. 12991**  
**March 24, 1975**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 103

## Windshield Defrosting and Defogging Systems

(Docket No. 73-6; Notice 4)

The purpose of this notice is to amend Motor Vehicle Safety Standard No. 103, *Windshield Defrosting and Defogging Systems*, 49 CFR 571.103, to specify a relocation of the test chamber temperature and wind velocity sensors.

On March 24, 1975, the National Highway Traffic Safety Administration published a notice (40 F.R. 13002) proposing a change in the location of the test chamber temperature and wind velocity sensors to a position where they would not be affected by air released from vehicle engines during testing. A petition from Jaguar Cars Division of British Leyland UK Limited, describing compliance problems for vehicles that direct engine heat at the windshield as part of the defrosting process, prompted the rulemaking action.

It was proposed that the temperature and wind sensors be positioned at the forwardmost point of the vehicle or 36 inches from the base of the windshield, whichever is farther forward, at a level halfway between top and bottom of the windshield. At this location, the NHTSA concluded that the temperature measurement would not be affected by expelled engine heat and the wind measurement would not be affected by air released from hood ducts.

Comments to the proposal were received from Chrysler, Jaguar, and General Motors. Both Chrysler and General Motors supported adoption of the amendment.

Jaguar took issue with the proposed thermocouple location and asked that the sensors be placed 3 feet forward of the vehicle. The NHTSA denies this request, having found that the proposed thermocouple position provides for reliable and objective temperature and wind velocity measurements. Location of the sensors at the position suggested by Jaguar is therefore unnecessary and would tend to penalize those manufacturers using short cold chambers for compliance testing. The purpose of the amendment is to relocate the temperature and wind sensors to locations where they will not be affected by air released from vehicle engines. The agency concludes that the proposed location accomplishes this goal and should therefore be adopted.

In consideration of the foregoing, Standard No. 103 (49 CFR 571.103) is amended by adding in §4.3 a new paragraph (h) . . .

*Effective date:* September 1, 1975.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on July 28, 1975.

James B. Gregory  
Administrator

**40 F.R. 32336**  
**August 1, 1975**



## MOTOR VEHICLE SAFETY STANDARD NO. 103

### Windshield Defrosting and Defogging Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses

**S1. Scope.** This standard specifies requirements for windshield defrosting and defogging systems.

**S2. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses, manufactured for sale in the Continental United States.

**S3. Definitions.** "Road load" means the power output required to move a given motor vehicle at curb weight plus 400 pounds on level, clean, dry, smooth Portland cement concrete pavement (or other surface with equivalent coefficient of surface friction) at a specified speed through still air at 68°F and standard barometric pressure (29.92" of Hg.) and includes driveline friction, rolling friction, and air resistance.

#### **S4. Requirements.**

**S4.1** Each vehicle shall have a windshield defrosting and defogging system.

**S4.2** Each passenger car windshield defrosting and defogging system shall meet the requirements of section 3 of SAE Recommended Practice J902, "Passenger Car Windshield Defrosting Systems," August 1964, when tested in accordance with S4.3, except that "the critical area" specified in paragraph 3.1 of SAE Recommended Practice J902 shall be that established as Area C in accordance with Motor Vehicle Safety Standard No. 104, "Windshield Wiping and Washing Systems," and "the entire windshield" specified in paragraph 3.3 of SAE Recommended Practice J902 shall be that established as Area A in accordance with Motor Vehicle Safety Standard No. 104.

**S4.3 Demonstration procedure.** The passenger car windshield defrosting and defogging system shall be tested in accordance with the portions of paragraphs 4.1 through 4.4.7 of SAE Recom-

mended Practice J902, August 1964, or SAE Recommended Practice J902a, March 1976, applicable to that system, except that—

(a) During the first five minutes of the test, the engine speed or speeds may be those which the manufacturer recommends as the warm-up procedure for cold weather starting;

(b) During the last 35 minutes of the test period (or the entire test period if the five-minute warm-up procedure is not used), either—

(i) The engine speed shall not exceed 1500 rpm in neutral gear; or

(ii) The engine speed and load shall not exceed the speed and load at 25 mph in the manufacturer's recommended gear with road load;

(c) A room air change of 90 times per hour is not required;

(d) The windshield wipers may be used during the test if they are operated without manual assist;

(e) One or two windows may be open a total of one inch;

(f) The defroster blower may be turned on at any time; and

(g) The wind velocity is at any level from 0 to 2 mph.

(h) The test chamber temperature and the wind velocity shall be measured, after the engine has been started, at the forwardmost point of the vehicle or a point 36 inches from the base of the windshield, whichever is farther forward, at a level halfway between the top and bottom of the windshield on the vehicle centerline.

33 F.R. 6469  
April 27, 1968



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 104****Windshield Wiping and Washing Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses****(Docket No. 7)**

Motor Vehicle Safety Standard No. 104 (32 F.R. 2410) specifies requirements for windshield wiping and washing systems for passenger cars 68 or more inches in overall width. A proposal to amend section 371.21 of Part 371, Federal Motor Vehicle Safety Standards, by amending Standard No. 104 was published in the *Federal Register* on December 28, 1967 (32 F.R. 20867).

Interested persons have been afforded an opportunity to participate in the making of the amendment. Their comments, as well as other available information, have been carefully considered.

The primary purpose of the amendment is to broaden the application of the Initial Standard to cover smaller passenger cars, multipurpose passenger vehicles, trucks, and buses. The wiped-area performance requirements have been extended to cars smaller than 68 inches wide, and tables which prescribe the minimum size of wiped areas have been added for such cars. The overall effect is that the wiper systems of various passenger cars must wipe areas to provide approximately equivalent driver vision. The wiper frequency requirement, modified to prescribe that the highest and lowest frequencies must differ by at least 15 cycles per minute, has been extended to multipurpose passenger vehicles, trucks, and buses. A requirement for a windshield washing system has also been extended to smaller cars, multipurpose passenger vehicles, trucks, and buses. Other modifications to the standard were made in order to improve its clarity.

The material received in response to the notice of proposed rulemaking evinced almost universal acknowledgement that broadening of the coverage of the standard would improve overall driver visibility and thus contribute to safety on the highways. With a few minor exceptions, dis-

cussed below, there was no suggestion that manufacturers would have any difficulty in complying with the revised requirements by the January 1, 1969, effective date.

Some of the comments indicated some misunderstanding of the reference to SAE Recommended Practice J903a, "Passenger Car Windshield Wiper Systems," May 1966, in paragraph S4.1.2 of the standard. Paragraph S4.1.2 is part of the wiped area requirement and it provides, among other things, for testing "in accordance with" SAE Recommended Practice J903a. This does not mean that all of section 4, "Test Methods," of SAE Recommended Practice J903a is incorporated by reference into the wiped area requirements of the standard. The reference to the SAE Recommended Practice relates only to its procedure for testing wiper systems for compliance with wiped area requirements. Therefore, the ozone test, wiper system stall test, 1,500,000-cycle durability test, and other details of section 4 of SAE Recommended Practice J903a are not included in the scope of Standard No. 104.

Several comments asked that the standard contain a demonstration procedure for testing windshield wiper systems for compliance with the 45-cycle-per-minute frequency requirement and the 15-cycle-per-minute frequency differential requirement. Apparently, these persons were concerned that the ability of systems to meet both requirements might be judged under abnormal conditions rather than under those encountered in normal driving. Considering these requests reasonable, the Administrator has provided that windshield wiper systems will be deemed to have met the frequency differential requirements of the standard (sections S4.1.2 and S4.1.1.3) if they meet those requirements when tested in accor-

dance with sections 4.1.1 and 4.1.2 of SAE Recommended Practice J903a.

One comment requested clarification of the location of the plan view reference line in the "eyellipse." The "eyellipse" is the "95 percent eye range contour" specified in SAE Recommended Practice J941, "Passenger Car Driver's Eye Range," November 1965. The author of this comment pointed out that Figure 2 in Recommended Practice J903a incorrectly shows the plan view reference line as located through the geometric center of the 95 percent eye range contour. The drawings referred to in Recommended Practice J941 show the "eyellipse" centerline as dissecting the left ellipse of the two intersecting ellipses in the plan view. In paragraph S3 of the standard, the definition of the "95 percent eye range contour" makes reference to SAE Recommended Practice J941, which correctly positions the plan view reference line in the left-hand ellipse of the "eyellipse." Accordingly, the Administrator has determined that subparagraph (a) of the definition of "plan view reference line" in paragraph S3 of the standard correctly reflects this position as defined, but subparagraph (b) of the same definition has been modified to clarify the location of the "eyellipse." Subparagraph (b), as revised by this amendment, places the plan view reference line outboard of the longitudinal centerline of the driver's designated seating position, thus locating the "eyellipse" itself geometrically in the center of the seat.

In the notice of proposed rulemaking, paragraph S4.2 required a windshield washing system meeting the requirements of SAE Recommended Practice J942, "Passenger Car Windshield Washer Systems," November 1965. Section 3.1 of that Recommended Practice sets washer system capability requirements by reference to the passenger car wiped area requirements of SAE Recommended Practice J903. Several comments pointed this out and requested modification of the standard in view of the fact that the wiped area requirements of the standard are different from those of Recommended Practice J903. In addition, some comments sought revision of this particular provision on the ground that the wiped areas of Recommended Practice J903 were created for passenger cars, while the washer provisions

of the standard apply to multipurpose passenger vehicles, trucks, and buses as well. In view of these comments, the Administrator has deleted the cross-reference, and S4.2 of the standard has been modified. The passenger car wiped-area requirement is now defined as that established under paragraph S4.1.2.1 of the standard; the wiped area for multipurpose passenger vehicles, trucks, and buses is now defined as the wiped area pattern designed by the manufacturer for the windshield wiping system on the exterior of the windshield glazing.

One comment sought a change in the wiper frequency differential requirement from 15 cycles per minute to 10 cycles per minute, claiming that production tolerances did not permit exact compliance with the 15-cycle-per-minute differential requirement. The comment did not indicate why, assuming a 5-cycle-per-minute tolerance is needed, the system could not be constructed to operate in the frequency differential range of between 15 and 20 cycles per minute rather than a 10-15 cycle range. The standard, like all standards, is a minimum one, and nothing in it prohibits a higher standard of performance than the one specified as minimal. For these reasons, and because the deviation requested would, if granted, lower the safety performance of this segment of the standard, the request has been denied.

Similarly, the Administrator has denied a request for deletion of the requirement that windshield washing systems must, when tested, deliver approximately 15 cc. of fluid to the windshield glazing surface. The requirement is embodied in section 2.11 of SAE Recommended Practice J942, which is incorporated by reference in paragraph 4.2 of the standard. The amount of fluid placed on the windshield's exterior is a central performance characteristic of a washing system, and a decrease in the required amount would clearly diminish the capability of the system to promote safety. Neither the comments in general nor any other known data indicate that the requirement incorporated in the standard is unfeasible. The one comment that sought a change in this aspect of the standard contained no detail demonstrating that systems in current production would be unable to meet the requirement by the effective date of the amendment. Consequently, the Administrator has decided not to deviate



from the adoption of section 2.11 of Recommended Practice J942, as announced in the notice of proposed rulemaking.

Several comments pointed out the difficulties involved in prescribing wiped-area requirements for multipurpose passenger vehicles, trucks, and buses. The Administrator is cognizant of the problems that arise because of the wide variety of windshield sizes and configurations as well as the differing relationships between the drivers' positions and the windshields in these vehicles. Owing to these factors, he has concluded that it is not possible to prescribe uniform wiped areas for the wiper systems of these vehicles generally or for vehicles within any generic type at this time. Hence, the standard's minimum wiped-area requirements apply only to passenger cars. The possibility of prescribing such requirements for other vehicular types will continue to be studied.

In addition, the Administration will also study the question of whether there should be standards applicable to so-called "hidden" windshield wipers

to insure their operability under snow and ice conditions. Although a number of comments sought the inclusion of such a provision in this standard, it was deemed inadvisable to do so in view of the absence of any such provision from the notice of proposed rulemaking.

In consideration of the foregoing, § 371.21 of Part 371, Federal Motor Vehicle Safety Standards, is amended effective January 1, 1969, by amending Motor Vehicle Safety Standard No. 104 . . . .

This amendment is made under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority of April 24, 1968.

Issued in Washington, D.C., on April 24, 1968.

Lowell K. Bridwell  
Federal Highway Administrator.

33 F.R. 6466  
April 27, 1968



# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 104**

## **Windshield Wiping and Washing Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses**

**(Docket No. 7)**

An amendment to Motor Vehicle Standard No. 104, which specifies requirements for windshield wiping and washing systems in passenger cars, multipurpose passenger vehicles, trucks, and buses, was issued on April 24, 1968 (33 F.R. 6466). The amendment is effective January 1, 1969.

Paragraph S3 of the amended standard, entitled "Definitions," contains a definition of the "plan view reference line" which, as it applies to vehicles with individual-type seats, locates the line parallel to the vehicle's longitudinal centerline so that the 95 percent eye range contour, or eyellipse, is geometrically positioned around the longitudinal centerline of the driver's designated seating position.

The purpose of the definition, as stated in the preamble to the standard, was to position the eyellipse geometrically in the center of the seat. The Administrator has determined that the definition may be construed to permit a different location of the eyellipse, since it provides that the 95 percent eye range contour must be geometrically positioned "around" the longitudinal centerline of the driver's seat. Therefore, the definition is being amended to clarify the location of the eyellipse by requiring its geometric center to be positioned on the longitudinal centerline of the driver's designated seating position.

Several petitions for reconsideration of the amendment have raised the possibility that the definition of plan view reference line may impose an unintended hardship on manufacturers of smaller cars. The effect of the definition is to relocate the eyellipse slightly outboard of the location prescribed in the standard prior to the amendment. This change may make it impracticable for manufacturers of smaller cars to com-

ply with the wiped-area requirements of the standard. Therefore, the definition is being further amended to permit optional positioning of the eyellipse on the plan view reference line in the manner prescribed in the standard prior to the previous amendment.

Neither of these revisions appreciably alters the amount of the windshield surface which wiping systems must wipe under the standard. Hence the amendments will have no adverse effect on motor vehicle safety.

Paragraph S4.1.1.3 of the amendment provides, in part, that the lowest frequency or speed of windshield wiping systems must be at least 20 cycles per minute regardless of engine speed and engine load. The Administrator has received petitions asking that a frequency or speed lower than 20 cycles per minute be allowed. The petitioners state that such a lower frequency or speed will be useful under conditions of very light precipitation or wheel spray, and that retention of the 20-cycle-per-minute minimum will preclude the use of so-called "intermittent" windshield wiping systems. The Administrator has concluded that the standard should be amended to allow manufacturers to use systems which can operate at a frequency or speed of less than 20 cycles per minute so long as the driver of the vehicle has available a system capable of operating at at least two other frequencies or speeds, differing by at least 15 cycles per minute, the lower of which is at least 20 cycles per minute. The net effect of this change is to allow as many different frequencies or speeds as the manufacturer desires as long as at least two of these speeds or frequencies meet the specified requirements.

Since these amendments provide clarification, relieve a hardship and impose no additional burden on any person, notice and public procedure thereon are unnecessary.

In consideration of the foregoing, § 371.21 of Part 371, Federal Motor Vehicle Safety Standards, Motor Vehicle Safety Standard No. 104 (32 F.R. 2410), as amended (33 F.R. 6466), is amended, effective July 31, 1968. . . .

It is found, for good cause shown, that an effective date sooner than 180 days after the issuance of these amendments is in the public interest.

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(Secs. 103, 119, National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1470); delegation of authority of April 24, 1968 (33 F.R. 6538)).

Issued in Washington, D.C., on July 31, 1968.

Lowell K. Bridwell,  
Federal Highway Administrator.

**33 F.R. 11117**  
**August 6, 1968**

## MOTOR VEHICLE SAFETY STANDARD NO. 104

### Windshield Wiping and Washing Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses

**S1. Scope.** This standard specifies requirements for windshield wiping and washing systems.

**S2. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses.

**S3. Definitions.** The term "seating reference point" is substituted for the terms "manikin H point" and "H point" wherever either of those terms appears in any SAE Standard or SAE Recommended Practice referred to in this standard.

"Daylight opening" means the maximum unobstructed opening through the glazing surface, as defined in paragraph 2.3.12 of section E, Ground Vehicle Practice, SAE Aerospace-Automotive Drawing Standards, September 1963.

"Glazing surface reference line" means the line resulting from the intersection of the glazing surface and a horizontal plane 25 inches above the seating reference point, as shown in Figure 1 of SAE Recommended Practice J903a, "Passenger Car Windshield Wiper Systems," May 1966.

"Overall width" means the maximum overall body width dimension "W116," as defined in section E, Ground Vehicle Practice, SAE Aerospace-Automotive Drawing Standards, September 1963.

"Plan view reference line" means—

(a) For vehicles with bench-type seats, a line parallel to the vehicle longitudinal centerline outboard of the steering wheel centerline 0.15 times the difference between one-half of the shoulder room dimension and the steering wheel centerline-to-car-centerline dimension as shown in Figure 2 of SAE Recommended Practice J903a, May 1966; or

(b) For vehicles with individual-type seats, either—

(i) A line parallel to the vehicle longitudinal centerline which passes through the center of the driver's designated seating position; or

(ii) A line parallel to the vehicle longitudinal centerline located so that the geometric center of the 95 percent eye range contour is positioned on the longitudinal centerline of the driver's designated seating position.

"Shoulder room dimension" means the front shoulder room dimension "W3" as defined in section E, Ground Vehicle Practice, SAE Aerospace-Automotive Drawing Standards, September 1963.

"95% eye range contour" means the 95th percentile tangential cutoff specified in SAE Recommended Practice J941, "Passenger Car Driver's Eye Range," November 1965.

#### **S4. Requirements.**

**S4.1 Windshield wiping system.** Each vehicle shall have a power-driven windshield wiping system that meets the requirements of S4.1.1.

##### **S4.1.1 Frequency.**

**S4.1.1.1** Each windshield wiping system shall have at least two frequencies or speeds.

**S4.1.1.2** One frequency or speed shall be at least 45 cycles per minute regardless of engine load and engine speed.

**S4.1.1.3** Regardless of engine speed and engine load, the highest and one lower frequency or speed shall differ by at least 15 cycles per minute. Such lower frequency or speed shall be at least 20 cycles per minute regardless of engine speed and engine load.

TABLE I. Passenger cars of less than 60 inches in overall width.

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6
AREA	MINIMUM PERCENT TO BE WIPED	ANGLES IN DEGREES			
		LEFT	RIGHT	UP	DOWN
A	80	16	49	7	5
B	94	13	46	4	3
C	99	7	15	3	1

TABLE II. Passenger cars of 60 or more but less than 64 inches in overall width.

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6
AREA	MINIMUM PERCENT TO BE WIPED	ANGLES IN DEGREES			
		LEFT	RIGHT	UP	DOWN
A	80	17	51	8	5
B	94	13	49	4	3
C	99	7	15	3	1

TABLE III. Passenger cars of 64 or more but less than 68 inches in overall width.

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6
AREA	MINIMUM PERCENT TO BE WIPED	ANGLES IN DEGREES			
		LEFT	RIGHT	UP	DOWN
A	80	17	53	9	5
B	94	14	51	5	3
C	99	8	15	4	1

TABLE IV. Passenger cars of 68 or more inches in overall width.

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6
AREA	MINIMUM PERCENT TO BE WIPED	ANGLES IN DEGREES			
		LEFT	RIGHT	UP	DOWN
A	80	18	56	10	5
B	94	14	53	5	3
C	99	10	15	5	1

**S4.1.1.4** Compliance with subparagraphs S4.1.1.2 and S4.1.1.3 may be demonstrated by testing under the conditions specified in sections 4.1.1 and 4.1.2 of SAE Recommended Practice J903a, May 1966.

**S4.1.2 Wiped area.** When tested wet in accordance with SAE Recommended Practice J903a, May 1966, each passenger car windshield wiping system shall wipe the percentage of Areas A, B, and C of the windshield (established in accordance with S4.1.2.1) that (1) is specified in column 2 of the applicable table following subparagraph S4.1.2.1; and (2) is within the area bounded by a perimeter line on the glazing surface one inch from the edge of the daylight opening.

**S4.1.2.1** Areas A, B, and C shall be established as shown in Figures 1 and 2 of SAE Recommended Practice J903a, May 1966, using the angles specified in Columns 3 through 6 of Table I, II, III or IV, as applicable.

#### S4.2 Windshield washing system.

**S4.2.1** Each passenger car shall have a windshield washing system that meets the requirements of SAE Recommended Practice J942, "Passenger Car Windshield Washer Systems" November 1965, except that the reference to "the effective wipe pattern defined in SAE J903, paragraph 3.1.2" in paragraph 3.1 of SAE Recommended Practice J942 shall be deleted and "the areas established in accordance with subparagraph S4.1.2.1 of Motor Vehicle Safety Standard No. 104" shall be inserted in lieu thereof.

**S4.2.2** Each multipurpose passenger vehicle, truck and bus shall have a windshield washing system that meets the requirements of SAE Recommended Practice J942, November 1965, except that the reference to "the effective wipe pattern defined in SAE J903, paragraph 3.1.2" in paragraph 3.1 of SAE Recommended Practice J942 shall be deleted and "the pattern design by the manufacturer for the windshield wiping system on the exterior surface of the windshield glazing" shall be inserted in lieu thereof.

33 F.R. 6467  
April 27, 1968

# PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO. 105a

## Hydraulic Brake Systems

(Docket No. 70-27; Notice 5)

This notice amends Part 571 of Title 49, Code of Federal Regulations, to add a new Motor Vehicle Safety Standard No. 105a (49 CFR § 571.105a) that establishes requirements for motor vehicle hydraulic brake systems and parking brake systems. A notice of proposed rulemaking on this subject was published on November 11, 1970 (35 F.R. 17345).

Federal Standard No. 105, in effect since January 1, 1968, represents the initial Federal effort to specify braking requirements for motor vehicles. The standard requires that passenger cars be equipped with a split service brake system, and have stopping ability based upon deceleration rates specified in an SAE Recommended Practice. Requirements for fade and recovery, water recovery, and stability while braking are also included in the standard. These requirements do not, however, represent the full capabilities of modern braking technology. Braking continues to be the most important single element of accident avoidance from the standpoint of vehicle performance. The full utilization of the industry's technological capability in this area, within the limits of reasonable cost, is therefore of highest importance to the safety effort.

The requirements of this standard are specified in terms of performance on a surface of relatively high skid number. The NHTSA recognizes the importance to safety of good braking performance on surfaces such as wet or icy roads. It is monitoring closely the development work in progress on methods, such as antilock systems, designed to enhance vehicle performance over a wide variety of surfaces, in preparation for future rulemaking action adding performance requirements in this area. Until such requirements are made effective, this agency assumes that

manufacturers will design their vehicles for safe braking performance on all types of road surfaces, while continuing to work on, and make provision for, more advanced braking systems.

The notice issued in November 1970 proposed extension of applicability of Standard No. 105 to other vehicle types and covered the same factors deemed important in the earlier standard. These include stopping distance, linear stability while stopping, fade resistance, and fade recovery. The notice also proposed features in hydraulic braking systems that could warn against malfunction, and stop the vehicle should a malfunction appear in the normal service system. The amended standard covers each of these aspects as discussed below.

1. *Applicability.* Standard No. 105 applies to passenger cars, and has been extended to specify requirements for the first time for multipurpose passenger vehicles, trucks, and buses equipped with hydraulic brake systems. A definition of brake power unit has been adopted and appropriate modifications made in the text to clarify that vehicles with central hydraulic power systems were included in the Notice. Standard No. 105a does not apply to vehicles equipped with "air over hydraulic" systems, which remain within the purview of Standard No. 121, *Air Brake Systems*.

2. *Effective date:* to meet the proposed effective date of October 1, 1972, equipment and performance requirements would have been substantially weaker than those that have been adopted and the NHTSA has determined that a later effective date is, overall, in the public interest. It is therefore set at September 1, 1974.

3. *Service brake system.* All vehicles with hydraulic brake systems are required to have a

split service brake system, with partial failure or "emergency" braking features. Effectiveness of the system is demonstrated by a series of road tests covering stopping distance, stability, and fade and recovery, water recovery, and spike stops.

**A. Stopping distance.** As the proposal noted, "perhaps the most important indication of brake performance is the distance in which a brake system can stop a vehicle from a given speed." Stopping distances were proposed from 30 mph, 60 mph, and 80 mph and maximum attainable vehicle speed, under various load and system conditions, based upon vehicle category or weight. These tests included stops with the vehicle at a lightly loaded weight, and stops under partial failure conditions. The following illustrate examples of the proposal and amendment. In addition to the stopping distances discussed below, stopping distances from 30 mph, 80 mph, and maximum attainable vehicle speed are also specified.

**Passenger cars.** It was proposed that passenger cars demonstrate the ability to stop in 185 feet from 60 mph under adverse loading conditions. The stopping distance adopted, 194 feet, is only slightly longer. According to Consumer Information data submitted by manufacturers of 1972 passenger cars, contemporary vehicles ranked 26th to 61st would be unable to meet this stopping distance requirement. This new requirement will result in a substantial upgrading of passenger car stopping ability. Currently under Standard No. 105, passenger cars must demonstrate the ability to stop in 646 feet from 60 mph under partial failure conditions. The new standard lowers this distance to 431 feet, an increase from the proposed 388 feet. The same stopping distance requirement must be met with an inoperative brake power assist or brake power unit.

**Vehicles with GVWR of 10,000 pounds or less.** Vehicles other than passenger cars with a gross vehicle weight rating of 10,000 pounds or less, must demonstrate the ability to stop from 60 mph in 216 feet under adverse loading conditions, and in 484 feet under partial failure conditions.

**Vehicles with GVWR greater than 10,000 pounds.** Vehicles in this category must demon-

strate an ability to stop from 60 mph in 245 feet under adverse loading conditions, and in 553 feet under partial failure conditions.

**B. Stability of vehicle while stopping.** As proposed, a vehicle will be required to stop (other than in spike stops) without any part of it leaving a 12-foot-wide lane. Wheel lockup is permitted at a speed below 10 mph and lockup of only one wheel not controlled by an antilock system is permissible at speeds in excess of 10 mph.

**C. Fade and recovery.** Brake fade characteristics are critical from the standpoint of retaining adequate stopping power despite the high temperatures created by prolonged or severe use. A vehicle will demonstrate fade and recovery capability in two tests, by making a number of fade stops from 60 mph if it is a vehicle with a GVWR of 10,000 pounds or less, or fade snubs from 40 mph to 20 mph, if it is a heavier vehicle. The latter represents a modification of the proposed snub speed range of 50 mph to 15 mph. The proposed maximum speed fade recovery test has not been adopted; the effectiveness test at maximum attainable vehicle speed should indicate whether a brake system will experience problems with fade.

**D. Water recovery.** Service brake systems must also demonstrate an acceptable recovery after exposure to water. The method of immersion has been modified on the basis of comments that the method proposed would necessitate use of a trough 880 feet long. Instead, the amendment specifies that the vehicle shall be driven for not less than 2 minutes at a speed of 5 mph, in any combination of forward and reverse directions, through a trough having a water depth of 6 inches. This change should clarify the test requirement as well as simplifying enforcement procedures.

**E. Spike stops.** The spike stop proposal has been adopted, with a revision to allow 6 check stops (instead of one), at least one of which meets the requirements of the specified distance and pedal force. This allowance recognizes variability of test drivers and vehicles.

**4. Parking brake system.** The parking brake system proposal has also been adopted. When the parking brakes are applied, with a force not exceeding 90 pounds for a hand-operated system



or 125 pounds for a foot-operated system, the parking brake system shall be capable of holding the vehicle stationary for 5 minutes on a 30 per cent grade (20 per cent for vehicles of more than 10,000 pounds GVWR) in both forward and reverse directions. Optional requirements have been adopted for vehicles with a GVWR of 10,000 pounds or less, equipped with a transmission utilizing a parking pawl or detent mechanism within the transmission assembly. Vehicles so equipped may demonstrate compliance by (1) parking with both the parking brake and pawl engaged on a 30 per cent grade, (2) parking on a 20 per cent grade with only the parking brake engaged, and (3) being impacted front and rear, on a level surface, by a 4,000 pound moving barrier without disengagement or fracture of the pawl or detent mechanism.

5. *Reservoirs.* The master cylinder reservoir proposal has been adopted with modifications that allow balance ports and compartmentalized reservoirs in a single integrated master cylinder body and reservoir assembly, and that reduce fluid reservoir capacity requirements from 150 per cent to 100 per cent. The proposed cover, seal, and retention devices have not been adopted since pressure differential warning and low fluid level warning should provide a sufficient safety factor. The proposal was intended also to cover reservoir requirements in systems not using master cylinders and the revised wording of the section clarifies this point.

6. *Brake system indicator lamp.* The proposal would have required separate lamps to indicate when the parking brake is applied, and when a failure has occurred in the service brake system. Standard No. 105a requires only one lamp to serve these functions, to be labeled "Brake". Either the wording or the lens may be the color red. The lamp must light in the event of pressure failure in any part of the service brake system, other than a structural failure of a housing that is common to two or more subsystems, before or upon application of 50 pounds of pedal force upon a manually-operated service brake, or 25 pounds upon a service brake with a brake power assist unit, or when the supply pressure in a brake power unit drops to not less than one-half of the normal system pressure. The lamp must also light, without the application of pedal

force, when the level of brake fluid in the master cylinder reservoir drops to less than the recommended safe level specified by the manufacturer, or to not less than one-fourth the fluid reservoir capacity in any reservoir compartment, whichever is greater. This does not preclude the use of translucent covers or sight gauges in addition to the required lamp. Additionally, the lamp must illuminate when there is a total electrical failure in an antilock or brake proportioning system. All indicator lamps shall be activated when the ignition switch is turned from the "on" to the "start" position, which includes the air start condition on diesel-engine vehicles. The lamps will be deactivated upon return of the switch to the "on" position. No time interval is specified for deactivation, as the NHTSA recognizes that instant deactivation is impracticable for continuous sensing units.

7. *Miscellaneous.* The NHTSA proposed that service brakes be installed so that the lining thickness of drum brake shoes and disc brake pads might be visually inspected without removing the drums or pads. The possibility that contaminants may enter the system if plugs are removed, the differences between riveted and bonded lining thickness, and the location of inspection ports, were some of the technical and safety factors weighing in the conclusion to abandon this proposal.

The agency decided against the proposal that would have established suspension system durability requirements to be met following completion of tests. Since the vehicle must remain within a 12-foot-wide lane as a condition of the stopping distance tests, this will be a satisfactory demonstration of suspension system integrity.

*Effective date:* September 1, 1974. Because of the necessity to allow manufacturers sufficient production leadtime, it is found for good cause shown that an effective date later than one year after issuance of this rule is in the public interest.

In consideration of the foregoing, Title 49, Code of Federal Regulations, is amended by adding § 571.105a, *Motor Vehicle Safety Standard No. 105a, Hydraulic Brake Systems*, as set forth below.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and

**Effective: September 1, 1974**

Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administrator, 49 CFR 1.51.

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Issued on : August 23, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 17970**

**September 2, 1972**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105a****Hydraulic Brake Systems****(Docket No. 70-27; Notice 7)**

The purpose of this notice is to announce that the effective date of Motor Vehicle Safety Standard No. 105a will be September 1, 1975. Full response to petitions for reconsideration is scheduled for May 1, 1973.

Standard No. 105a, *Hydraulic Brake Systems*, was published on September 2, 1972 (37 F.R. 17970 with corrections at 37 F.R. 19138) with an effective date of September 1, 1974. On December 19, 1972, the NHTSA advised (37 F.R. 27629) that it intended to issue a notice by February 1, 1973, in response to petitions for reconsideration of the standard. The volume of the petitions received and the complexity of the issues involved are such that the agency has not found it possible to publish a full response to the petitions by the date indicated.

The NHTSA has, however, decided to grant petitions requesting a delay in the effective date, to the extent of a one-year postponement. Petitioners have demonstrated to the satisfaction of the agency that because of critical lead-time

problems the original effective date is impracticable. The NHTSA believes that in the additional year provided the industry will have sufficient time to increase the reliability of the systems that otherwise would have been incorporated beginning September 1, 1974, with the result that consumers will be provided with braking systems that have been optimized with respect to safety, performance, and cost.

The full response and discussion of issues raised by the petitioners is planned for issuance by May 1, 1973.

(Sec. 103, 119 P.L. 89-563, 80 Stat. 718, 15 USC 1392, 1407; delegation of authority at 49 CFR 1.51).

Issued on January 30, 1973.

Douglas W. Toms  
Administrator

**38 F.R. 3047**  
**February 1, 1973**



# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105a**

## **Hydraulic Brake Systems**

**(Docket No. 70-27; Notice 8)**

This notice responds to petitions for reconsideration of Motor Vehicle Safety Standard No. 105a and amends the standard in certain respects, effective September 1, 1975.

Federal Motor Vehicle Safety Standard No. 105a, 49 CFR § 571.105a, was published on September 2, 1972 (37 F.R. 17970). Thereafter, pursuant to 49 CFR § 553.35 petitions for reconsideration of the rule were received from many interested corporations. A discussion of the major issues raised by the petitions and their resolution follows.

1. *Policy.* Several petitioners questioned the need for stringent braking requirements. The claim was made that NHTSA has shown neither a need based on accident data relating brake performance to deaths, injuries, or property damage, nor the benefits to be obtained from changed braking systems. Additionally, comments were received that most consumers could not utilize enhanced braking capabilities under most circumstances. Some also questioned the cost to implement the standard (allegedly \$40 an average per vehicle as a minimum, and up to \$75 in some instances for passenger cars).

The NHTSA does not agree with its critics on these policy issues. Braking system performance has consistently rated high on the safety criticality list. The dominance of the role of braking systems in accident avoidance maneuvers has long been recognized and undisputed. The importance of braking in motor vehicle safety is evidenced by the fact that of all vehicle defects which cause or contribute to accidents, brake failures lead the list. In the Consumer Information data on braking stopping distances provided by the automobile manufacturers, the better performing vehicles are reported to stop

from 60 mph in slightly more than one half the distance of the poorer performing vehicles. Large stopping distance differentials among vehicles operating in a common traffic stream are recognized as creating serious hazards to the motorist.

Data have shown that in many accidents a more effective service brake system would have lessened the severity of the collision or possibly averted it. Existing vehicles in many instances do have good braking capabilities but require excessive control forces to utilize these capabilities. Many drivers are not able to exert these forces and hence do not utilize existing systems to the fullest. With reduced stopping distances within the specified pedal forces required by Standard No. 105a, it is the opinion of NHTSA that deaths, injuries, and property damage will be reduced.

Since the requirements also specify that the stopping distances shall be achieved with the vehicle under control, stopping without locked wheels in a 12-foot-wide roadway lane, motorists will be afforded a greater opportunity to operate their brakes effectively in accident avoidance maneuvers.

Cost estimates submitted by petitioners are in agreement with those of the NHTSA. Based upon the information received from petitioners and the changes made as a consequence thereof, however, it is the opinion of this agency that the cost of implementation will be reduced to a figure commensurate with the safety benefits expected to be derived.

With respect to the performance levels specified, the NHTSA has determined that the values are reasonable and do not exceed the inherent capabilities of any of the various vehicle classes.

The values specified for vehicles other than passenger cars will considerably reduce the existing stopping distance differentials among vehicle classes.

Several petitioners commented on what they considered to be a lack of consistency in performance levels between vehicle types. For example, in the second effectiveness test, passenger cars, light trucks and heavy trucks have different performance requirements based upon weight and speed. Standard No. 105a was criticized also because the required stopping distances for heavy trucks with hydraulic brakes were more stringent than requirements for heavy trucks with air brakes (Standard No. 121, *Air Brake Systems*). It was argued that requirements should be the same for similar vehicles regardless of the type of brake system. Petitioners requested that partial failure system requirements, and requirements for failed power units, be identical to those for air-braked vehicles.

Other petitioners requested that emergency-type tests should allow locked wheels as in Standard No. 121. Petitioners, in several instances, requested changes in light load test requirements for the various vehicles. These requests were based on differences in load conditions, inertia load differences in stopping, center of gravity locations, and braking balance differences.

The standard has been amended to recognize the changes in performance due to vehicle weight differences, considering the effects of center of gravity location and weight shifts occurring during decelerations. Also, speed sensitivity effects have been recognized as occurring in all vehicles and appropriate modifications in requirements at the various test speeds have been made. Heavy vehicle requirements have been adjusted where appropriate to make them identical to those existing in Standard No. 121. Some differences have been retained, however. For example, fade tests in Standard No. 105a are run on the vehicle in a road test as compared with a dynamometer test in Standard No. 121. Dynamometer tests were selected in Standard No. 121 since vehicles used primarily in combinations are included in that standard. Compatibility between vehicles (tractor and trailer) was considered to be an important factor in the brake

system evaluation and could most easily be determined on the dynamometer.

Revisions to Standard 105a also have been made to allow wheel lockup on emergency-type tests such as spike stops, tests with failed power units, and partial system tests. Also, in the parking brake test, the limit of traction of the braked wheels is used in specifying parking brake system performance on a 30 per cent grade. There are no changes in parking braking system requirements because of weight differences. The NHTSA is of the opinion that all vehicles, regardless of weight class, are frequently parked in a lightly loaded condition and hence should be tested under this condition.

2. *Effective date.* The NHTSA has previously announced an overall delay of one year in the effective date of Standard No. 105a (38 F.R. 3097).

Petitioners generally considered the original effective date of September 1, 1974, to be unreasonable and impracticable. The earlier effective date as it applied to trucks, buses and multipurpose passenger vehicles coincided with the same effective date for Standard No. 121, issued some time before Standard No. 105a. The air brake systems will generally have new and larger foundation brakes, new suspensions and other related components, antilock or brake proportioning systems and new split systems as well as controls. Hydraulic-braked vehicles require in most instances similar changes to meet 105a requirements. However, manufacturers and suppliers had prior commitments to concentrate much of their available manpower, equipment and facilities to the development of conforming air brake systems. These manpower, equipment, and facilities are generally the same required for the development of conforming hydraulic-braked vehicles, and thus the changes to hydraulic-braked vehicles cannot be made simultaneously with air brake system changes. In addition, sufficient recognition must be given to the lead-time necessary for application studies, production standardization in areas where this is possible, drawing and specification preparation, tooling design time and procurement, and establishing manufacturing facilities. In some instances, plant facilities must be built along with con-

struction of development and test facilities. Petitioners also mentioned the significance of reduced product reliability if it is necessary to completely redesign entire vehicle lines simultaneously. Additional problems that can arise are related to the capability of the manufacturers to train adequately technical personnel to assemble, service, and maintain the new vehicles.

Several petitioners requested an extension of the effective date for vehicles other than passenger cars beyond September 1, 1975. International Harvester requested a date of September 1, 1976 for these vehicles. Others would not predict a date on which they could meet the requirements.

Several commenters stressed the fact that metallic, semi-metallic, or ceramic linings, considered exotic materials presently, would probably be required to meet Standard No. 105a as of September 1, 1974. Resulting penalties would occur in cost (high wear, scoring, etc.) and poor or erratic performance under normal conditions.

Comments were also received concerning four-wheel drive vehicles. Low volume and consequent high costs for necessary changes are problems in this segment of the industry. Suppliers of components for these vehicles are allegedly reluctant to design and tool parts. In addition, manpower and facilities are not available for these jobs since most time and efforts must be utilized for the higher volume vehicles. An indefinite delay in an effective date for these vehicles has been requested.

After careful evaluation of all the petitions, the NHTSA considered that good cause had been shown for a delay of one year in the effective date of the standard. But it has been determined that a further delay, either for the standard or for separate vehicle categories is not in the interest of motor vehicle safety, and those petitions for a further extension of time are denied.

*3. Definitions.* Numerous comments were received on the definitions. In some instances amendments are made, in others, none. Clarifications have been provided where they were requested.

Questions relating to brake power assist units and brake power units have been raised. The distinction between the two is that a brake power assist unit has a push-through capability, i.e., the

operator can apply additional muscular effort and obtain braking action. A brake power unit does not have this capability. If power is lost, a driver cannot increase braking force by additional muscular effort on the control.

Some petitioners mentioned units which function in both modes, i.e., as a brake power unit in one condition, and as a brake power assist unit in a second condition. For example, a unit may function as a brake power unit under normal operating conditions, but when a power failure occurs, it operates as a brake power assist unit. For purposes of compliance, the failed mode of operation would be the critical mode. Therefore, with inoperative power units, the test requirements should be met depending on how the system operates in the failed mode. The example discussed above would be tested as a brake power assist unit.

The definition of "brake proportioning system" raised the question whether a fixed or variable system was intended. The term has been redesignated "variable brake proportioning system" to clarify the agency's intent.

The definition of "lightly loaded vehicle" does not specify an additional weight allowance for a load platform or body to be added to an incomplete vehicle, but in the opinion of some petitioners it should. Since the standard applies to complete vehicles, a manufacturer must use his discretion in applying additional weight to incomplete vehicles, taking into account the resulting changes in weight and center of gravity, when providing information on Standard No. 105a to subsequent multistage vehicle manufacturers.

Some manufacturers questioned the adequacy of the test surface specification: the "skid number" produced by American Society for Testing and Materials Method E-274, using a test trailer to measure the coefficient of friction. The complaint was made that the measurement results vary from one trailer to another, and vehicle performance results vary from one surface to another with supposedly the same skid number, on the order of 20 percent. It was also argued that the ASTM test was qualitatively inadequate, in that it measured sliding friction rather than peak or incipient friction.

The NHTSA does not accept these arguments. In the first place, it should be noted that thrust of the manufacturers' arguments is not only to abort this rulemaking, but to cast doubt on the validity of the existing braking standard. Whatever its shortcomings, the ASTM test is the only one to the knowledge of this agency that provides an objective and quantitative measure of the frictional characteristics of a road surface, and no other was suggested by petitioners. The present passenger car braking standard incorporates an SAE Recommended Practice (J843d) that specifies only a "dry, smooth, hard-surfaced roadway of Portland cement concrete (or other surface with equivalent coefficient of surface friction) that is free from loose materials," a far vaguer description.

Furthermore, the NHTSA does not find the argument based on variations in test results to be persuasive. The variations of 15 and 20 percent cited are extreme figures. With carefully calibrated and controlled test instruments and conditions, as specified in the standard, evidence before this agency indicates that the normally experienced variations are much smaller. Manufacturers have attempted to impose a criterion of perfect repeatability on the safety standards. Perfect repeatability, however, is an illusion. In the "real world" of materials testing, particularly of gross characteristics such as vehicle braking capability or crashworthiness, variation in results is inevitable; the question is not whether, but how much, variation is acceptable. Obviously, the standard should be designed to reasonably minimize the variability of test results, from the standpoint both of manufacturing costs and of effective regulation.

In this case, the ASTM method chosen was developed in 1965, and has been widely used since then for the purpose of vehicle performance testing. Moreover, it has been in force since 1970 in a closely similar NHTSA regulation: the Consumer Information regulation on Vehicle Stopping Distance (49 CFR 575.101), under which manufacturers have been required to test their vehicles' stopping-distance capabilities, and report them to consumers and to the NHTSA. The same statutory penalties have applied to a failure to meet these reported stopping distances when tested by the government as would apply

to a failure to meet the stopping distance required by a standard. In light of these factors, the arguments that the method for specifying the test surface is inadequate are found to be without merit.

The NHTSA also rejects the suggestion by the Recreational Vehicle Institute that this agency should supply or measure the test surface, because of the limited capabilities of motor home manufacturers. The clearly intended result of the National Traffic and Motor Vehicle Safety Act is that the private sector should bear the cost of regular conformity and certification testing. There is no requirement that each vehicle manufacturer have his own measured test track. Small manufacturers can have their vehicles tested by contract with testing companies; they can use their trade associations to arrange for use of measured test tracks in convenient regional locations; or they can work with the chassis manufacturer and use his test results.

The sudden application of force in a "spike stop" is 200 pounds applied in 0.08 second. Chrysler Corporation suggested a "band" of 0.05-0.20 seconds as permitted in SAE Recommended Practice J229 *Service Brake Structural Integrity Test Procedure*, March 1971. The purpose and legal significance of a test condition in a Federal motor vehicle safety standard are different from those of an industry test practice, and a band or tolerance as requested by Chrysler is inappropriate and unnecessary in the former. Assuming that a faster application is more demanding of vehicle performance, Chrysler in effect has a band from 0 to 0.08 second for its tests, which should be designed to show that the vehicle is capable of meeting the requirements with spike stops of 0.08 second.

The definition of "stopping distance" varied from the notice of proposed rulemaking in that the phrase "start of the brake application" was changed to "point of application of force to the brake control." Wagner Electric Co. considers the modified definition as more stringent since, in its view, the notice allowed both "force" and "movement" while the amendment allows only the former. The NHTSA disagrees with Wagner. Both versions refer purely to the brake pedal, and not to more remote parts of the brake



system. This agency is unaware of any measurable difference in time between the introduction of force to the pedal and the initiation of pedal movement, and Wagner has supplied no evidence to the contrary. The modified wording has been adopted for purposes of clarity.

General Motors objected to stopping distances as performance requirements, and expressed its views that deceleration rates provide more objective performance criteria. This represented a departure from GM's previous views that build-up and maintenance of a fixed deceleration depended upon varying driver skills, affecting reproducibility. The variety in driver skills is one reason the NHTSA considers measurement of a specified distance more desirable than maintenance of a fixed deceleration rate. Insertion of a fixed build-up time would introduce a complication. The stopping distances specified do not include a fixed build-up time but instead allow use of various characteristics, including greater or lesser build-up times, as long as the vehicle does not exceed the stopping distance specified. A specified maximum (but not fixed) build-up time is used in fade tests where decelerations are specified. Further, the distances expressed in Standard No. 105a are maximum distances, and manufacturers will necessarily design their vehicles to perform with a margin within those limits, thus reducing problems of objective measurement.

4. *Required stopping distances and pedal control forces.* The stopping distance values, in most instances, were considered by petitioners to require redesigned braking systems. In some cases, larger brake systems would be required, incorporating front disc brakes with power assist and larger rear drum brakes. Other vehicles, particularly trucks, buses, and multipurpose passenger vehicles, would require the addition of antilock systems or brake proportioning systems, along with new types of split systems (or completely redundant systems). These systems, it is alleged, would be required to meet the full system effectiveness and the partial system effectiveness requirements.

The 30 mph and maximum speed stopping distances were considered too stringent by most petitioners. The very short stops involved, along

with the buildup or actuation time necessary, were the main problems in the 30-mph tests. The problem of the speed sensitivity of lining materials was the main factor noted in comments relating to the high speed and maximum speed tests.

For first effectiveness test, recommended changes in stopping distances ranged at 30 mph from no increase to an increase of 9 feet for passenger cars, 7 feet for light trucks, and 20 feet for heavy trucks. At 60 mph, requests for increases of up to 17 feet for passenger cars, 7 feet for light trucks, and 75 feet for heavy trucks were received. Two petitioners suggested deleting heavy truck requirements, either to be consistent with Standard No. 121 or until "more realistic data" was available.

The second through fourth effectiveness tests were more severely criticized by petitioners. Several suggested that fourth effectiveness test values be increased to at least those used in the first effectiveness tests (involving increases of 5, 7 and 10 feet at 30 mph, and changes of 20, 26, and 32 feet at 60 mph, for passenger cars, light trucks and heavy trucks, respectively). Several commenters recommended deletion of tests at speeds greater than 80 mph. For light and heavy trucks, maximum speeds of 60 mph to 80 mph were recommended.

Certain modifications in stopping distances and test speeds have been made in response to these comments. The maximum test speed for a vehicle with a GVWR that exceeds 10,000 pounds has been reduced from 80 mph to 60 mph. The maximum test speed will be 100 mph, specified only for those passenger cars which attain a speed of 104 mph or greater in 2 miles. If the speed that a passenger car is capable of attaining in 2 miles is from 99 to 104 mph, its maximum test speed will be 95 mph. Intermediate test speeds between 80 and 95 mph, and 60 and 80 mph have also been eliminated for all vehicles; thus if a vehicle's top speed is from 84 to 99 mph, its top test speed is 80 mph; if the top speed is from 64 to 84 mph, its top test speed is 60 mph. Stopping distances have been increased slightly in most instances from those previously required; an example is the second effectiveness test where the 60-mph stopping distance for pas-

senger cars at GVWR will be 204 feet rather than 194. Under partial failure conditions at the same speed, the stopping distance for passenger cars has been increased from 431 to 456 feet.

Standard No. 105a required stops to be made at pedal forces that varied from 15 to 100 pounds at stops from 30 mph, to 20 to 150 pounds at stops from 65 mph or higher. Pedal control force values were objected to and requests for changes were made, ranging from an increase at 30 mph to 120 pounds to an across the board increase to 150 pounds maximum for all tests. Petitions were based generally on the need either to allow higher pedal forces to reduce brake sensitivity or to provide a simple single value for all tests. A change to allow 200 pounds of maximum pedal force on parking brake tests for light trucks was also requested. Several petitioners also requested modifications in fade recovery test pedal force values.

The NHTSA considers that most of these requests are meritorious. The standard is being amended to specify a uniform force range of 15 to 150 pounds for all stops that must be made within required stopping distances, and this will be expressed as a test condition in paragraph S6. However, the parking brake test pedal forces must, in the opinion of the NHTSA remain uniform at 125 and 90 pounds (foot and hand) and the petition on this point is denied. General Motors requested a force for the 5th (final) fade recovery stop that is within plus 50 pounds and minus 5 pounds or minus 40 percent (whichever is greater) of the average control force for the baseline check. These values are considered too broad. Some relief is deemed warranted, however, and Japan Automobile Manufacturers Association's suggested value of minus 10 pounds has been adopted.

5. *Inoperative power units.* In addition to the requests for clarification between brake power assist units and brake power units petitioners requested changes in requirements that would recognize the reserve capabilities that have been designed into the inoperative mode of some power systems. These petitions have been granted, and tests with an inoperative brake power unit or power assist unit have been modified to allow

optional utilization of reserve capabilities in stopping. Under the optional procedure a vehicle makes a series of stops from 60 mph at specified decelerations when the inoperative unit is not initially depleted of all reserve capability and in a final stop within 554 feet when the unit has been depleted of its reserve.

6. *Fade and recovery requirements.* Standard No. 105a required that vehicles with a GVWR of 10,000 pounds or less demonstrate fade resistance in two fade and recovery tests of 10 and 15 stops each from 60 mph at 15 fpsps.

Fade and recovery requirements were considered extremely stringent by petitioners. Several petitioners suggested a reversion to the existing requirements with minor modifications. Others suggested changes in test weights. Most were willing to accept the 150-pound pedal force limitation if other modifications proposed were acceptable. GM recommended that two different fade test procedures be adopted, the first simulating a mountain type fade test at GVWR with increased distance intervals, and the second being similar to that adopted except at a reduced test load.

These petitions have been deemed in large part to have merit, and the two fade tests will be revised to consist of 5 and 10 fade stops at 15 fpsps, each followed by an additional 5 stops at the maximum deceleration attainable between 5 and 15 fpsps. The fade test requirements for vehicles with a GVWR in excess of 10,000 pounds remains unchanged. However, no procedure simulating mountain descents has been developed, and GM's request is denied. International Harvester, in the fade test procedure, requested that the time to attain the required deceleration presently 1 second, be increased to 5 seconds. This request is denied, since an increase has been found unnecessary.

7. *Water recovery.* GM petitioned for substantial changes in the water recovery test, asking relocation within the test sequence, modified control forces, and increased number of recovery stops for heavy trucks. None of these requests has been found to have merit. A change in sequence would necessitate reevaluation of the effect of the standard with a possible consequent further delay in the effective date.

8. *Spike stops.* With regard to the spike stop requirements, Bendix requested that the stopping distance for the effectiveness (check) stops be the equivalent of the first effectiveness test rather than that of the other effectiveness tests. The request has merit, and the stopping distance requirements of the first effectiveness test have been adopted.

GM requested that for the spike stop test manufacturers be allowed to use separate vehicles not used in the other tests, while Harvester requested a reduction in stopping speed from 60 mph to 30 mph. Because of the changes in stopping distance that have been adopted, no further relief is deemed necessary and the petitions are denied.

9. *Parking brake systems.* The parking brake system requirements, particularly in the lightly loaded vehicle condition, were objected to as violating the laws of physics. As mentioned earlier, petitioners generally requested inclusion of a "limit of traction" condition. Vehicles with a great range of loading conditions are allegedly incapable of holding on grades specified in the requirements (20 percent or 30 percent). Particular stress was placed on brake holding capability on a 75 skid number surface. One commenter requested that the same requirements apply to all vehicles, claiming it unrealistic for light vehicles to meet the 30 percent grade requirement while heavy vehicles only had to meet a 20 percent requirement, and suggested use of a Swedish standard (16 percent grade, 110 pounds of foot brake force, 88 pounds of hand brake force). Ford requested allowance for use of a multistroke parking brake application. American Motors Corporation requested reinstatement of existing Standard No. 105 requirements. GM and Chrysler objected to the requirement that the parking brake be of a "friction type" which they considered design restrictive, prohibiting other acceptable parking brake systems.

The parking brake system test remains substantially as adopted. The performance requirements have been found feasible with present technology. A multistroke application is permissible, and limit of traction language has been added to the 30 percent grade requirement, to eliminate the irrelevant problem of tire slippage.

The requirement for a friction-type parking brake is also retained. In a case of complete loss of service brake capability, a friction-type parking brake furnishes a residual stopping capability for a moving vehicle that is absent in a pawl-type system (such as the "park" position transmission stop). If the phrase "friction type" appears design restrictive of other types of parking brake systems that would provide equivalent capability, this agency will be receptive to suggestions for substitute language, with adequate supporting information.

Wagner petitioned for deletion of the parking brake test with the vehicle at lightly loaded weight. This request is denied as the NHTSA believes that vehicles are frequently parked in a lightly loaded condition, and that a test should therefore be run at this vehicle weight.

10. *Indicator lamps.* The standard has been amended so that indicator lamps may now be activated as a check of lamp function when the ignition is in the on position and the engine is not running, or in any position between on and start that is designated by the manufacturer as a check position. Ford petitioned that the brake fluid level indicator be deleted, but its request is denied as the NHTSA has determined that a warning should be provided in the event of slow leaks. Conversely, Mercedes-Benz of North America petitioned for deletion of the pressure differential warning, alleging that the fluid level indicator is sufficient. This, too, is denied, as the fluid level indicator will not indicate pressure failure until the fluid is at the level specified for a warning, an entirely different function. Several petitions asked that the 200-psi brake fluid pressure level be adopted (this had been proposed in Notice 1 for measurement at master or slave cylinder outlets), and these petitions have been granted. In response to several petitions, the illumination provided when an indicator lamp is activated may be flashing as well as steady-burning.

11. *Reservoirs.* In the requirements for the master cylinder reservoir, clarifications have been provided in the determination of a fully worn, fully applied lining position. Reservoir labeling has been modified to require color contrasts of printed labels only, the contrast in lettering and

background on stamped or embossed labels deemed a sufficient contrast in those instances. GM asserted that the reservoir capacity requirements were unnecessary in light of the requirement for a fluid level indicator, and petitioned that the requirements be deleted. The petition is denied; the volume requirements are necessary to provide sufficient fluid for a full range of brake travel.

12. *Test conditions.* The specified test load of 50 to 725 pounds per cubic foot has been refined by assigning density distribution to various vehicle areas, for example 50 to 125 pounds per cubic foot in the seating area of all vehicles. Several manufacturers requested that the transmission selector control be in gear during all test decelerations, alleging that the neutral position is not representative of consumer usage. These requests are denied. Deceleration in gear by adding driveline drag masks the true effectiveness of the brake system. Comments were also directed to the prohibition against lockups, generally alleging inconsistency with Standard No. 121. These comments had merit, and the test condition has been amended to allow lockups during spike stops, partial failure stops and inoperative brake power or power assist unit stops. On the other hand, a request to allow more than one locked wheel is denied. Provision has been made for installation of a second thermocouple at the beginning of the test sequence if the lining wear is expected to reach a point causing the first thermocouple to contact the metal rubbing surface of a drum or rotor. Since the brake control forces have been modified to a uniform range of 15 to 150 pounds, except as otherwise specified, control forces have been added to the list of test conditions.

13. *Test procedures and sequence.* Most American manufacturers and suppliers commented on the severity of the sequential procedure, with arguments of the following nature: The high speed effectiveness tests early in the sequence result in changes in lining characteristics which, in turn, affect the capability of the vehicles to comply with parking brake and partial systems requirements. Since no reburnish is allowed until after the first fade test, additional lining deterioration occurs as light load tests and fade

tests are run. When final effectiveness tests are run, organic linings (normally used in today's vehicles) have deteriorated appreciably. This sequential testing, without reconditioning at intervals, results in brake torque balance changes as the test sequence progresses. To offset these changes and to enable a vehicle to go through compliance tests satisfactorily, many vehicles would have to be designed with an initial high gear brake capacity. This results in an unsafe early rear brake lockup, particularly at the initial light load test. As the sequence progresses, brake balance shifts toward a more reasonable balance, where all wheels approach lockup at or near same point. A brake balance which is designed initially for GVWR test conditions to meet Standard 105a requirements, would be dangerous to consumers for normal usage at 2 to 3 passenger loads due to rear wheel lockup and resultant uncontrollable skids. Recommendations by petitioners generally favored less testing at GVWR, reduced maximum test speeds, lessened fade requirements, and lessened final effectiveness requirements. The various changes would allow design of a brake system more suitable to normal consumer usage rather than the usage encountered in 105a tests. Ford recommended some changes in sequence but submitted a procedure incorporating the 105a sequence with modified performance requirements. GM suggested a drastically revised sequence along with reduced performance requirements. Several petitioners recommended additional burnish stops and adjustments at several points, generally after each effectiveness series. Ford proposed a 200 stop additional burnish after the second fade test.

In responding to petitions for reconsideration, the NHTSA has not modified the sequence of the test procedure. Recognizing the validity of many of the comments, the NHTSA instead has adjusted all vehicle performance values to more closely correlate sequential testing with normal everyday driving performance. This has been accomplished by (1) reducing the high speed performance requirements, (2) eliminating high speed performance requirements at early sequence test points and retaining them only in the last effectiveness test, (3) allowing extra burnish stops for reconditioning of the lining materials, (4) modifying fade performance requirements,

(5) allowing a broader range of control force requirements while maintaining a maximum force limit of 150 pounds, (6) allowing extra adjustments of the brake system during the test sequence to provide more optimum brake performance, (7) modifying fade and wet-brake control force requirements to allow a broader range of forces without allowing a range that might produce severe over- or under-recovery. These modifications are intended to allow manufacturers to design braking systems with a balance that will provide satisfactory overall performance.

At Ford's request, the general test procedure instructions have been modified to require lock-out of automatic adjusters prior to burnish and for the remainder of the test sequence.

For the pretest instrumentation check, requests were received to specify a minimum number of instrumentation check stops or snubs, as well as the presently specified maximum. Such a specification would, however, be meaningless. With the maximum number specified, each manufac-

turer knows precisely the "worst case" that his vehicles must be designed for, and should test his vehicles at or above that level.

In consideration of the foregoing, 49 CFR § 571.105a, Motor Vehicle Safety Standard No. 105a, is revised to read as set forth below.

*Effective date:* September 1, 1975. Because these amendments relate to a standard that is effective September 1, 1975, it has been determined for good cause shown that an effective date later than 180 days after issuance is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 USC 1392, 1407; delegation of authority at 38 F.R. 12147).

Issued on: May 11, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

**38 F.R. 13017**  
**May 18, 1973**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket No. 70-27; Notice 10)

This notice responds to further petitions for reconsideration of Motor Vehicle Safety Standard No. 105a and amends the standard in certain minor respects effective September 1, 1975.

Federal Motor Vehicle Safety Standard No. 105a, 49 CFR 571.105a, *Hydraulic brake systems*, was published on September 2, 1972 (37 F.R. 17970). Thereafter, pursuant to 49 CFR 553.35, petitions for reconsideration of the rule were received and, in response, a revised Standard No. 105a was published on May 18, 1973 (38 F.R. 13017). Timely petitions for reconsideration of the revised rule were received from American Motors Corporation (AMC), Wagner Electric Corporation (Wagner), General Motors Corporation (GM), International Harvester Company (Harvester), Japan Automobile Manufacturers Association (JAMA), Ford Motor Company (Ford), Recreational Vehicle Institute (RVI), and Toyota Motor Sales, U.S.A., Inc. (Toyota). This notice discusses the major issues raised and their resolution. The Administrator does not consider repetitious petitions and to the extent that these further petitions were repetitious of the initial ones (*e.g.* deletion of tests above 80 mi/h for heavy vehicles, modification of pedal forces, running tests in gear rather than in neutral), they have not been considered, pursuant to NHTSA regulations (49 CFR 553.35 (c)).

GM petitioned for rulemaking that would rescind Standard No. 105a on the grounds that the brake systems it has designed for the 1976 model year would have to undergo substantial changes in subsequent model years when it plans to introduce lighter vehicles with improved fuel consumption. This agency considers energy needs along with other factors relevant to its rulemak-

ing actions. The information available to the NHTSA does not indicate, however, that Standard No. 105a is incompatible with increased fuel mileage, or would add substantially to the weight of the vehicles covered. The NHTSA does not consider a change in a manufacturer's own design plans to be a justification for discarding an important new set of requirements for which the world industry has been preparing for several years. The petition by GM to rescind the standard is therefore denied.

*Effective date:* Harvester and RVI petitioned for a delayed effective date for certain categories of vehicles. Harvester requested a one-year delay in the effective date for vehicles whose GVWR exceeds 10,000 pounds, stating its doubt that acceptable antilock systems will be available to it by September 1, 1975, and that the advance hardware proposals from its brake system suppliers indicate that considerable design and development time is still needed. RVI wished an extension of 2 years for recreational vehicles built upon truck and multipurpose passenger vehicle chassis, alleging that time will be needed for testing and retooling after receipt of the first chassis or vehicle certified as conforming to the new braking standard.

The NHTSA does not consider further extension of the effective date to be in the public interest, and the petitions are denied. The broad outlines of the performance requirements have been known to industry since publication of the initial proposal in November, 1970, with its proposed effective date of September 1, 1972. Since publication of the new standard in September, 1972, the effective date has been delayed one year to September 1, 1975, and considerable relief provided for vehicles whose GVWR exceeds 10,000 pounds.

*Definitions.* In response to a petition by JAMA, a definition of "backup system" is adopted. Such a system is "a portion of a service brake system, such as a pump, that supplies energy in the event of a primary brake power source failure".

*Effective requirements.* Clarifying words are added throughout in response to various requests. For example, the fourth effectiveness test now makes it clear that if the speed attainable in 2 miles is 99 mi/h or greater, stops must be made from both 80 mi/h and a specified higher speed, and not from the higher speed alone. In response to GM's comments on inoperative brake power and power assist units (S5.1.3), a new S5.1.3.4 has been adopted that allows brake power assist units to be tested under the optional procedure if the unit utilizes a backup system.

The word "average" has been deleted from S5.1.4.2 (fade and recovery) which specified fade stops in excess of "an average deceleration" floor, at the request of Wagner, as the inclusion of the word was erroneous and does not reflect the test procedures of S7.11.2.1.

The brake system indicator lamp requirements (S5.3.1) were the subject of numerous petitions, most of which have been granted. The NHTSA reiterates that the methods of pressure failure indication in S5.3.1(a) are alternative rather than inclusive. Harvester asked that S5.3.1(a) be amended to delete the qualification of pressure measurement at a slave cylinder outlet "if the master cylinder controls slave cylinders at a booster unit". It argues that with this design configuration it should be allowed to measure pressure at the master cylinder outlet. The NHTSA agrees that the original wording of S5.3.1(a) is design restrictive and that measurement at either the master or slave cylinder outlet is satisfactory for monitoring pressure, and the qualifying phrase is removed. S5.3.1(a)(1) requires activation of the indicator upon activation of "a line pressure of not more than 200 psi". Ford requested an amendment to clarify that the intent is to specify a differential pressure between the operational and failed brake systems. The clarifying amendment has been made and the pressure differential increased to 225 psi to compensate for certain power-assisted units. As a

failure indicator GM prefers a switch that would activate the warning lamp when the brake pedal has been depressed past a certain point, rather than a lamp activated by fluid pressure failure.

The petition is denied, as the NHTSA has determined that the brake pedal travel involved to activate the lamp would not provide an adequate warning.

JAMA and Toyota asked for an amendment or interpretation of S5.3.2 that would allow the indicator lamp to remain activated when the ignition is returned to "on", after the engine is started. To allow the lamp to remain on after the engine is started might degrade the importance of the check that the system is intended to indicate, and that the request is denied. JAMA also requested that if there is a separate parking brake indicator that it be labelled "Park", and this petition has been granted.

GM requested that the volume requirements of master cylinder reservoirs on large trucks be reduced to one-third that required by the new standard. Since NHTSA has reduced the requirement in response to previous petitions, from 150 per cent to 100 per cent of fluid displacement, it does not deem it in the interest of safety to reduce it further. GM's petition is denied. The agency wishes to clarify, however, that the volume concerned is only that within the storage compartment, and does not include that fluid which may remain in pipes, hoses, and fittings. At Harvester's request, S5.4.2 is amended slightly to clarify that the minimum reservoir capacity is that of the total reservoir system rather than each reservoir compartment.

S5.6, *Brake system integrity*, had been amended in May 1973 to specify that friction facing tear-out of the lining must "not exceed 10 percent of the lining on any frictional element" rather than "10 percent of the lining surface areas". GM requested reinstatement of the original requirement. The request is denied. The language that was adopted in May 1973 clarified a previously existing ambiguity while providing a measure of relief that had been previously requested.

*Conditions.* Ford interpreted the words "test load" in S6.1.1 as the load required to be added to bring a vehicle to its GVWR. In some instances, if this added weight were distributed



proportionally to GAWR the front GAWR would be exceeded. NHTSA intended that a vehicle be loaded at GVWR so that its gross vehicle weight is distributed proportionally to its GAWR, and S6.1 is amended appropriately. Ford, JAMA, Toyota, and RVI petitioned for a change in the load material density specification of S6.2 to allow use of iron shot or bars in the passenger seating area, or in cargo areas of light and heavy trucks. The RVI request would allow use of lead shot in drawers, cupboards, and cabinets of recreational vehicles. In large part, these requests have been granted; maximum material densities have been increased from 125 to 450 pounds per cubic foot in seating areas of passenger cars, and in cargo areas of vehicles with a GVWR of 10,000 pounds or less. To allow the use of cast iron in the cargo areas of heavy trucks the minimum density has been lowered slightly from 450 to 400 pounds per cubic foot. The RVI request, however, is not adopted as this would permit too broad a range for testing and consequent difficulty of reproducing test results. It was to alleviate this problem that the original Standard No. 105a was amended on this point in May 1973. AMC and GM asked that the tire inflation pressure be that specified for the test weight, rather than for the GVWR of the vehicle. In NHTSA's view, the time to reset tire pressures after allowing tires to cool would complicate and lengthen test procedures. There are only three tests run at the lightly loaded weight, and no data have been submitted to show that the tire pressure required causes a substantial increase in stopping distances.

S6.10 allows only one uncontrolled wheel to lock at braking speeds above 10 mph on any given stop. GM suggested that this section allowed one wheel per axle to lock. GM's interpretation is incorrect, however; "one wheel" means one wheel on the vehicle. Ford wanted to reset thermocouples during brake inspections. This requested amendment is denied. Except for normal adjustment, inspections for thermocouple depths are not allowed once a test series has begun, in order that brake systems not be disturbed. The NHTSA may consider different depths for thermocouples in the future if data are obtained showing a need.

*Test procedures.* GM, JAMA, Toyota, and RVI petitioned that lockout of automatic brake adjusters be optional rather than required. On review the NHTSA has decided that there is no reason not to allow use of adjusters during testing. However, if a manufacturer locks out brake adjusters, this will now occur when linings are installed after the thermocouple installation; i.e. before the test series rather than before burnish. This is intended to save time in the test procedures.

The service brake burnish procedure for heavy vehicles is being amended pursuant to a petition by GM, to be in accord with the procedure recently proposed for such vehicles in Standard No. 121. Minor clarifying amendments have been made at various places in the test procedures. Toyota asked whether S7.9.4 applied only to mechanical proportioning systems. This paragraph applies to any variable proportioning system whether mechanical, electrical, hydraulic or otherwise. It does not apply to a fixed mechanical proportioning system.

*Figures and tables.* Pursuant to a request from Ford, the dimensional specification of "1½ inches" has been added to Lever A on Figure II. JAMA and Toyota want to consider a modified T lever as a "T" rather than as an "L" type. The NHTSA will consider this design a "T" type if the short side is no less than one-third the long side. JAMA and Toyota requested that the load point on the "L" type handle be revised to 1½ inches from the handle end instead of from the center line. This request is denied, as the original requested dimension (30 mm) has been previously increased to 1½ inches (approximately 37 mm) and no further change is deemed necessary.

Harvester was the sole petitioner to request an increase in the stopping distances of Table II, asking that vehicles with a GVWR of 10,000 pounds or less in the lightly loaded condition be afforded the same maximum stopping distance from 60 mph as required of similarly loaded vehicles under the same conditions in Standard No. 121. It also requested an increase in the fourth effectiveness stopping distance to give the same difference in deceleration at 80 mi/h as allowed by Standard No. 105 at 60 mi/h. Both

petitions are denied. Air-braked vehicles covered by Standard No. 121 include truck-tractors with a high center of gravity and usually a higher front-to-rear weight distribution than light trucks, so that the lesser stopping distance in Standard No. 105 is justified. The test value of the fourth effectiveness test reflects previous modifications for requirements at 60 mi/h. The industry in general has not disclosed any problem in complying with the deceleration values from 80 mi/h. The correct stopping distance for heavy vehicles from 50 mi/h in the first, fourth, and spike effectiveness tests is 193 feet, not 183 feet as previously published.

GM, Toyota, and JAMA requested an increase in the deceleration values of Table III as an allowance for larger vehicles tested to optional brake power and assist unit procedures. This request is denied. These vehicles are presently required to meet only a 6.3 ft/s/s deceleration which is considered the minimum value acceptable.

Finally, Harvester wanted an inclusive pedal force range of 15 to 150 pounds for all phases of compliance activity including baseline checks. The NHTSA considers a 150-pound pedal force too high for baseline tests at low speeds and

relatively low decelerations, and the petition is denied.

Although the NHTSA has on occasion used the subletter "a" to denote comprehensive revision of existing standards effective at a future date, such standards will henceforth be identified in terms of their effective dates. Thus "Standard No. 105a" becomes "Standard No. 105-75 (effective September 1, 1975)".

In consideration of the foregoing 49 CFR 571.105a, Motor Vehicle Safety Standard 105a, hydraulic brake systems, is amended as follows:

*Effective date:* September 1, 1975. Because these amendments relate to a standard that is effective September 1, 1975, it has been determined for good cause shown that an effective date later than 1 year after issuance is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on February 14, 1974.

James B. Gregory  
Administrator  
**39 F.R. 6708**  
**February 22, 1974**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket No. 70-27; Notice 11)

This notice responds to petitions for reconsideration of the amendments to 49 CFR 571.105-75, Motor Vehicle Safety Standard No. 105-75, published in the *Federal Register* on February 22, 1974 (39 F.R. 6708). The standard is amended to defer for one year the requirements for a brake fluid level sensor for vehicles with a GVWR over 10,000 pounds, and for two years, a 60-pound maximum baseline pedal effort on vehicles with a GVWR over 15,000 pounds. Slightly increased stopping distances in the third effectiveness test are adopted for one year for certain heavy vehicles at lightly loaded vehicle weight.

Timely petitions for reconsideration of the amendments were received from Girling, Ltd., Wagner Electric Corporation (Wagner), Ford Motor Company (Ford), General Motors Corporation (GM), and Recreational Vehicle Institute, Inc. (RVI). International Harvester Company (Harvester), subsequent to the time allowed for filing petitions for reconsideration, raised certain issues in writing to the Administrator, and its presentation, in accordance with NHTSA regulations, has been considered as a petition for rulemaking. This notice discusses the major issues raised and their resolution.

*Effective date:* RVI again petitioned for a delayed effective date for recreational vehicles built upon truck and multipurpose passenger vehicles chassis, alleging that time will be needed by final-stage manufacturers for testing and re-tooling after receipt of the first chassis or vehicle manufactured after the effective date of Standard No. 105-75.

RVI's petition is found to be repetitious of arguments raised previously, and accordingly, pursuant to NHTSA regulations (49 CFR

553.35(c)), has not been granted. The denial of Notice 10 therefore stands, on the grounds set forth in Notice 10 of this docket. In brief, the NHTSA expects a manufacturer of incomplete vehicles to provide final-stage manufacturers, pursuant to 49 CFR 568, with information sufficient to indicate how the final-stage manufacturer may achieve compliance with Standard No. 105-75. Since the effective date of the standard is over a year away, there remains sufficient time for final-stage manufacturers to discuss with manufacturers of incomplete vehicles the kind of information that is to be provided, and to resolve such problems as may appear.

Harvester and Wagner have apprised the NHTSA of unexpected leadtime problems associated with the incorporation of brake fluid indicators into master cylinders of heavy vehicles. The agency has confirmed the seriousness of these problems, and has determined that they derive from factors substantially beyond the control of the affected vehicle manufacturers. It has accordingly concluded that a 1-year delay in the required date for introduction of fluid level sensors for vehicles whose GVWR exceeds 10,000 pounds would be in the public interest.

Harvester also requested a year's delay of the third effectiveness test requirements (S5.1.1.3). It stated that vehicles with 151 inches or less wheelbase and 8,000 pounds or greater GVWR will require anti-lock systems to meet the stopping distance requirements for lightly loaded vehicles, and that suitable anti-lock systems cannot be developed for 1976 model year production. The NHTSA does not consider that a year's delay of the third effectiveness test requirements is in the public interest. It finds, however, on the basis of the information before it that the

incorporation of anti-lock systems into this class of vehicles by the September 1, 1975, effective date is probably impracticable. The standard accordingly is being amended to permit, for a period of 1 year, somewhat longer stopping distance requirements for lightly loaded vehicles of 8,000 pounds or more GVWR. The NHTSA finds these distances to be achievable without anti-lock systems, and that the change for the interim period is justifiable in terms of the costs and the safety benefits involved. As an example, the maximum stopping distance permissible from 60 mph at lightly loaded vehicle weight is changed from 216 feet to 242 feet for vehicles with a GVWR between 8,000 and 10,000 pounds.

*Effectiveness requirements.* Clarifying words are again added to the effectiveness requirements and test procedures in response to various requests. Heretofore the performance requirements for vehicles with inoperative brake power assist units and brake power units specified four stops at a deceleration figure, with the fifth and final stop specified in feet. This has apparently proved confusing, and the final stop will now be expressed in a manner consistent with the remainder of the performance requirements, as "an average deceleration of not lower than 7 fpsps". This value, however, applies only to passenger cars. Ford argued that the heavy truck stopping distance values are unrealistic, in the optional procedures provided by S5.1.3.2 and S5.1.3.3 for inoperative brake power assist units and brake power units. It petitioned for less stringent values. The agency has considered that Ford's views have merit, and is amending the standard to require a final stop at an average deceleration of not lower than 6 fpsps. Table III has been amended to reflect this change.

Two petitioners contested the pedal force baseline value range of 15 to 60 pounds for the fade and recovery and water recovery demonstrations. GM asked that the minimum be reduced to 10 pounds, while Harvester requested an increase in the maximum to 88 pounds. GM submitted new test data to substantiate its request and its petition is granted; but a floor of 5 pounds is placed on the recovery minimum value. Harvester's petition is predicated on the results of "extensive tests" that show "that no vehicle over 15,000 lbs. GVWR can be brought

into compliance with this requirement for model year 1976." In recognition that even exerting its best efforts Harvester cannot comply by September 1, 1975, the NHTSA has determined that a relaxation of this requirement for two years would be in the public interest. Therefore, Harvester's petition is granted, and between September 1, 1975, and September 1, 1977, the maximum baseline pedal effort will be 90 pounds with a restriction on fade recovery of 100 pounds maximum, and of 110 pounds on water recovery.

With respect to the brake failure indicator lamp, Ford and Wagner requested clarification that the pressure failure condition is a rupture type, rather than one resulting from slow leaks. This request is granted, and S5.3.1(a) is amended to specify that the failure causing the lamp to operate is "A gross loss of pressure (such as caused by a rupture of a brake line) . . ." Wagner also asked whether an automatic reset pressure failure valve would violate the standard. When there is a slow leak in the service brake system, the warning valve will shuttle, activating the indicator lamp, but the lamp will not remain activated when the pedal is released and then reapplied. The NHTSA intends the fluid level indicator to warn of fluid loss due to slow leaks, and the pressure differential indicator to warn of gross pressure loss. The failure of the lamps to remain activated by the valve does not violate Standard No. 105-75.

Some petitioners cited an apparent conflict in the previous denial of Toyota's petition to allow an indicator lamp to remain activated when the ignition is returned to "on" after the engine is started, and the fact that some systems do not instantly deactivate. NHTSA has previously noted in the notice of September 2, 1972 (37 F.R. 17970), that no time interval is specified, and that instantaneous deactivation could not be required of continuous sensing units. The indicators considered acceptable to NHTSA are those that may remain activated for a limited time (such as 1 to 10 seconds) after the ignition is returned to "on".

Finally, Wagner petitioned for reinstatement of the limiting phrase "in any reservoir compartment" in the requirement that an indicator lamp be activated whenever there is a drop in the level of brake fluid in a master cylinder reservoir to

less than one-fourth of fluid reservoir capacity. The phrase was deleted in the notice of February 22, 1974, but it should have been retained to clarify that a low level in any reservoir compartment must be indicated. Wagner's petition is granted.

*Test conditions.* Ford requested an amendment of the test weight condition of S6.1 to clarify how, in the GVWR test condition, added weight is to be distributed, since even at lightly loaded weight on some vehicles the front axle load exceeds its proportional share of the GVWR. The clarification is now provided by adding to S6.1.1 "However, if the weight on any axle at lightly loaded vehicle weight exceeds the axle's proportional share of the gross vehicle weight rating, the load required to reach GVWR is placed so that the weight on that axle remains the same as at lightly loaded vehicle weight."

Ford also asked that S6.2 *Test loads* be revised so that the manufacturer could designate the density of the test load selected, rather than to anticipate values that may be selected from within the prescribed range in the agency's compliance testing program. This petition is denied. Ford's suggestion would result in each manufacturer setting its own unique performance requirements, and would not be appropriate for standards required by law to be uniform for the types of vehicles to which they apply. Each vehicle must comply with the requirements of the standard when loaded with materials of any density within the applicable ranges. This is made clear by the second sentence of S6. *Test conditions*: "Where a range of conditions is specified, the vehicle shall be capable of meeting the requirements at all points within the range."

GM once again petitioned for an amendment of S6.4. *Transmission selector control*, to allow stopping of the test vehicle in gear rather than neutral. Since the agency, pursuant to 49 CFR § 553.35, does not consider repetitious petitions, no action has been taken.

*Test procedures and sequence.* S7. allows automatic adjusters to be locked out prior to burnish and for the remainder of the test sequence. Girling has petitioned that lockout

should only be in accordance with manufacturer's recommendations. NHTSA agrees and is amending S7. accordingly. At the request of GM the agency has also amended S7. to outline a test procedure for conducting stops when the gear selector is required to be in the neutral position.

Girling also asked that the postburnish brake adjustment test procedure (S7.4.1.2 and S7.4.2.2) be amended to make clear that these sections do not prohibit postburnish adjustment of manually adjustable brakes. Girling is correct, and appropriate amendments are made to reflect the agency's intent.

Ford and Wagner both asked that the burnish procedure of S7.4.2.1.2 be amended in a manner consistent with Motor Vehicle Safety Standard No. 121, to allow brake applications at a point 1.5 miles from the previous brake application for vehicles unable to attain any required speed in 1 mile. The petition is granted, and the standard is amended accordingly.

Finally, Ford suggested that the test procedure for first reburnish, S7.6, be changed to reflect the optional procedure of S7.4.2.1.2, and this request has also been granted.

Other minor amendments have been made to correct printing errors and for internal consistency.

In consideration of the foregoing, 49 CFR 571.105-75, Motor Vehicle Safety Standard No. 105-75, is amended . . .

*Effective date:* September 1, 1975. Because these amendments relate to a standard that is effective September 1, 1975, it has been determined for good cause shown that an effective date later than 1 year after issuance is in the public interest.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on July 9, 1974.

James B. Gregory  
Administrator

39 F.R. 25943  
July 15, 1974



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket No. 70-27; Notice 13)

This notice amends Standard No. 105-75, *Hydraulic brake systems*, 40 CFR 571.105-75, as it applies to passenger cars, in response to petitions for reconsideration of amendments published July 15, 1974 (39 F.R. 25943) (Notice 11). The amendments defer for one year the requirement for a brake fluid level indicator and modify the permissible pedal force values used in recovery stops.

Manufacturers of hydraulic-braked motor vehicles responded to the Notice 11 amendments of the standard with petitions for reconsideration of specific technical changes in some performance requirements, and also with far-ranging requests for substantial modification, delay, or revocation of the standard. These broad requests are answered in a separate proposal to delay the effective date of the standard for four months in the case of passenger cars, and indefinitely in the case of multipurpose passenger vehicles (MPVs), trucks, and buses. For this reason, only the specific technical elements that necessarily affect passenger cars are addressed in this notice.

*Brake fluid level indicator.* Chrysler Corporation, Ford Motor Company, General Motors, and Wagner Electric Corporation responded to the 1-year delay in fluid level indicator requirements for heavy vehicles by asserting that procurement and reliability problems also exist for lighter vehicle categories. The NHTSA contacted several manufacturers of brake fluid level indicators and discussed the availability and reliability of their products. It appeared that further field evaluation of available indicators could improve their reliability and that some delay should solve the availability problems which existed. At the February 11 public meeting, American Motors Corporation confirmed that availability problems

still exist for brake fluid level indicators. Consequently, the NHTSA amends the standard to defer requirements for brake fluid level indicators until September 1, 1976.

International Harvester requested clarification in the wording of S5.3.1(b), which appears to require a signal if the amount of brake fluid in a small, nearly full compartment of a split system reservoir does not equal one-quarter of the volume of the larger compartment. The NHTSA agrees that confusion may arise from the present wording, and, without changing the intended meaning of the requirement in any way, amends the wording as requested by Harvester.

Ford requested a clarification of wording in S5.3.1(a), which presently calls for a signal when "any" one of several pressure losses is experienced. Ford correctly notes that the NHTSA use of "any" means that the vehicle or system must be capable of meeting the specified requirement upon the occurrence of every condition listed, and that, in this case, such was not intended. The NHTSA has corrected the wording to make clear that only one of the conditions (at the option of the manufacturer) must be indicated by the brake system indicator lamp.

*Maximum and minimum brake pedal force—recovery stops.* Chrysler and the Japan Automobile Manufacturers Association (JAMA) supported the Notice 11 reduction of baseline pedal force limits to permit optimization of braking characteristics over the whole range of system operating conditions. Their petitions argued for an additional change to the minimum pedal effort in the first through fourth recovery stops to encourage optimal recovery characteristics. Specifically, Chrysler recommended that the present 15-pound limit (S6.1.13) on minimum

pedal force in the early recovery stops be replaced by a formula tied to the average control force for the baseline check. To avoid oversensitive brakes, a minimum pedal force of five pounds would be required.

The NHTSA concludes that such a requirement would allow greater design freedom in optimizing brake recovery without sacrificing limits on brake sensitivity. Accordingly, the NHTSA reconsiders its action on minimum brake control force requirements, and amends the standard in response to JAMA and Chrysler.

Chrysler also raised the issue of maximum allowable pedal force in the fifth stop of the water recovery requirements. Presently this pedal force can be a maximum of 90 pounds (60 pounds for average control force in the baseline check plus 30 pounds), but this formula requires lower pedal force on a vehicle with lower average baseline pedal force. Chrysler has considered changes in brake lining to lower the wet recovery stop values, but the modifications include major disadvantages such as increased brake imbalance, larger boosters, noise, and wear. The NHTSA finds that the formula can be revised to avoid penalizing good baseline performance, while maintaining a 90-pound maximum effort. Accordingly, S5.1.2.5 is amended to permit a 45-pound increase of pedal effort, as long as the maximum effort does not exceed 90 pounds.

*Other requirements of the standard.* Wagner requested that the Notice 11 revisions of "in neutral" procedures be made consistent with other provisions of the standard, or that they be replaced with other procedures. The NHTSA finds the present procedure more reproducible than that suggested by Wagner and therefore denies this petition. Wagner correctly pointed out that the procedure to "exceed the test speed by approximately seven mph" may contradict the requirement of testing at speeds only four mph lower than maximum attainable speeds (S5.1). Accordingly, "four to eight mph" is substituted for "approximately seven mph" in S7.

In a related area, JAMA requested that the test procedure for wet brake recovery stops be modified (S7.16.2). The NHTSA did not address these procedures in Notice 11, and does not find that this new subject matter is appropriate for consideration at this time. The JAMA petition will be considered as a petition for rule-making which will be addressed in the near future.

Bendix requested clarification of the Notice 8 preamble discussion of "power assist" and "power" units. Bendix's question arose with regard to its "hydro-boost" unit, which is described as designed with a "push through" capability in both the "normal" and "failed power" operating conditions, and with an accumulator that permits low pedal effort for a limited number of brake applications after a power failure has occurred. The NHTSA concludes that, because the Bendix "hydro-boost" does not prevent the operator from braking the vehicle by an application of muscular force in the "failed power" condition, it qualifies as a brake power assist unit under the definitions of Standard No. 105-75.

Several minor amendments have been made to correct a printing error in Table I as it appeared in Notice 8 (38 F.R. 13017, May 18, 1973) and for consistency in the use of abbreviations and terminology.

In consideration of the foregoing, Standard No. 105-75 (49 CFR 571.105-75) is amended. . .

*Effective date:* September 1, 1975: Because the amendments relax a requirement and because the present effective date of the standard is September 1, 1975, it is found for good cause shown that an effective date sooner than 180 days following publication of the amendments in the *Federal Register* is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51)

Issued on March 6, 1975.

Noel C. Bufile  
Acting Administrator  
**40 F.R. 11584**  
**March 12, 1975**



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket No. 70-27; Notice 14)

This notice amends Standard No. 105-75, *Hydraulic brake systems*, 49 CFR 571.105-75, to make it applicable only to passenger cars equipped with hydraulic brake systems. This amendment has the effect of withdrawing the standard's applicability to multipurpose passenger vehicles (MPV's), trucks, and buses equipped with hydraulic brake systems.

The National Highway Traffic Safety Administration (NHTSA) proposed a 4-month delay of the standard as it applies to passenger cars and indefinite delay as it applies to other hydraulic-braked vehicles (40 FR 10483, March 6, 1975). Manufacturers responded to the proposed 4-month delay for passenger cars with objections to technical features of the standard, the costs of mid-year changes, and the NHTSA's estimate of the standard's safety benefits. While consideration of these issues continues, a decision has been made to withdraw the standard's applicability to trucks, buses, and MPV's.

The NHTSA proposed withdrawal of the standard because of uncertainty that the particular performance levels established for trucks, MPV's, and buses by Standard No. 105-75 were justified in view of their costs. It is clear that truck braking is in many cases substantially poorer than passenger car braking, and that the generally longer stopping distances and the greater severity of truck accidents justify a safety standard for these vehicles. At the same time, the costs of meeting Standard No. 105-75 in all truck, bus, and MPV model lines are substantial and the NHTSA is not prepared to conclude that they are justified in view of achievable safety benefits.

The Center for Auto Safety (CFAS) questioned the NHTSA's right to propose withdrawal of a promulgated rule in response to manufacturer cost objections without publication of the agency's evaluation of the submitted cost data. As authority, CFAS cites the newly-enacted cost information provisions of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. § 1402).

In this case manufacturers submitted costs for light- to medium-duty trucks that ranged from \$54 to \$775 per unit (depending on model configuration) to attain compliance with the standard. The NHTSA compared these figures with independently-gathered detailed cost and mark-up information and substantiated that the manufacturer's estimates were accurate. This material has been formally compiled as required by the Act and has been made public in the docket (70-27; Notice 12).

CFAS, the Consumers Union, Ms. Susan P. Baker of Johns Hopkins University, the Insurance Institute for Highway Safety, and the Permanent Medical Group stressed the importance of a brake standard for these vehicles. The NHTSA agrees and intends to issue interim requirements for MPV's, trucks, and buses equipped with hydraulic brake systems. However, the NHTSA concludes that the Standard 105-75 requirements in their present form cannot be justified for trucks, buses, and MPV's on the basis of the data available at this time.

In consideration of the foregoing, Standard No. 105-75 (49 CFR 571.105-75) is amended . . .

*Effective date:* September 1, 1975. Because the effective date of the standard for trucks, buses, and MPV's was less than 180 days after the date of publication of this amendment in the

Effective: September 1, 1975

*Federal Register*, it is found for good cause shown that an effective date less than 180 days from the date of publication is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51).

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Issued on April 25, 1975.

James B. Gregory  
Administrator

**40 F.R. 18411**  
**April 28, 1975**

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

### Hydraulic Brake Systems

(Docket No. 70-27; Notice 15)

This notice amends Standard No. 105-75, *Hydraulic brake systems*, 49 CFR 571.105-75, to delay its effective date four months from September 1, 1975, to January 1, 1976, and to establish interim control force values for water recovery testing. This notice also amends the present hydraulic brake system standard for passenger cars (Standard No. 105, *Hydraulic brake systems*, (49 CFR 571.105)) to permit compliance with that standard or the new standard at the option of the manufacturer until January 1, 1976.

As issued, Standard No. 105-75 applied to passenger cars, trucks, buses, and multipurpose passenger vehicles (MPV's) equipped with hydraulic brake systems. Its scheduled effective date was September 1, 1975. Thirteen petitions for rulemaking to postpone or revoke the standard were filed with the NHTSA earlier this year. Following a comprehensive evaluation of the petitions, the NHTSA proposed and made final an indefinite delay of the standard as it applied to trucks, buses, and MPV's (40 F.R. 10483, March 6, 1975; 40 F.R. 18411, April 28, 1975).

At the same time, the agency denied petitions for substantial postponement or revocation of the standard as it applies to passenger cars, having considered the cost of compliance for those vehicles, and having determined that significant safety benefit will derive from better stopping performance, stability, and pedal force levels (40 F.R. 10483, March 6, 1975). A discussion of the potential benefits accompanied that decision. An economic evaluation of the impact of the standard will be available in the public docket. The only revisions of the standard proposed by the NHTSA were an interim pedal force value and a 4-month delay of effective date, to permit some flexibility in new model introduction dates where technical

changes or isolated compliance problems had not been resolved.

Manufacturer comments on the proposal were generally unresponsive to the proposed delay of four months and the interim pedal force value of 110 pounds in wet recovery stops. The Vehicle Equipment Safety Commission considered the proposed pedal force values to be overgenerous. Chrysler Corporation indicated its support for the 4-month delay and interim value but emphasized other arguments in its submission. General Motors requested that the pedal force value be made permanent. It appears that manufacturers support the short delay and pedal force modification to simplify introduction of the 1976 models. Accordingly, the standard is modified as proposed, to establish an amended effective date of January 1, 1976, and a pedal force increase of 60 pounds up to a total of 110 pounds (in S5.1.5.2) until September 1, 1976.

The majority of comments restated manufacturer positions on the issue of substantial delay or revocation of the standard for passenger cars. The NHTSA has already considered this issue and, as noted above, concluded that the benefits of improved stopping performance, stability, and pedal force values outweigh the costs of implementation. Manufacturers submitted no new data that would justify a reversal of NHTSA's earlier decision.

Although the NHTSA limited its proposal to a choice between the effective dates of September 1, 1975, and January 1, 1976, several manufacturers compared the cost savings of a short delay to January 1, 1976, with a substantially longer delay to September 1, 1976. Actually, the January 1 date was proposed in order to ease the introduction of new models after September 1,

1975, and was not proposed as a means of reducing costs. The proposal was largely in response to manufacturers' comments that some 1976 models would be introduced substantially later than normal so that 1975 model production might be extended beyond September 1, 1975. The NHTSA believes that the three years of lead-time since promulgation of Standard No. 105-75 have been sufficient to permit the design and testing of complying brake systems in nearly all cases. With the 4-month transitional period, a manufacturer will be free to introduce the new brake systems along with its new model introduction, as dictated by the economic situation of the automotive industry.

Ford and Chrysler suggested that the standard could be improved by reduced loading during brake fade testing. These companies argue that present-day brake balance must be modified to meet the brake-fade and fourth effectiveness test of Standard No. 105-75 and that the new balance is not optimum. Agency testing demonstrates that many present-day vehicles can in fact meet the requirements as their brakes are balanced and suggests that major departures from current brake balance design will generally not be re-

quired to comply with fade requirements under the present test conditions. The NHTSA accordingly concludes that the presently-specified loading does not result in characteristics which would justify delay of the standard and the consequent loss of benefits during the period of delay.

In consideration of the foregoing, Standard No. 105-75 (49 CFR 571.105-75) is amended. . . .

*Effective date:* The date on which Standard No. 105-75 becomes mandatory for all passenger cars is January 1, 1976. However, the effective date of the amendments to both Standard No. 105-75 and Standard No. 105 is June 9, 1975, and passenger cars manufactured between that date and January 1, 1976, may conform to either standard at the discretion of the manufacturer.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on June 5, 1975.

James B. Gregory  
Administrator  
**40 F.R. 24525**  
**June 9, 1975**

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket No. 70-27; Notice 16)

This notice responds to three petitions for reconsideration of recent amendments of Standard No. 105-75, *Hydraulic brake systems*, 49 CFR 571.105-75 (40 F.R. 11584, March 12, 1975) (Notice 13). The petitions requested clarification of new language that specifies minimum control force application values (§5.1.4.3(a) (2) and §5.1.5.2(a) (2)) and objected to the NHTSA decision to defer for 1 year the requirement for a brake fluid level indicator in passenger cars.

Wagner Electric Corporation requested clarification of the description of minimum permissible control force application value, which reads, "A minimum of 10 pounds or 40 percent (whichever is greater) less than the average control force for the baseline check (but in no case less than 5 pounds)." Starting with a baseline value, the manufacturer must utilize the lower of two values which result when different amounts are subtracted from the baseline value. Because there is some ambiguity in the language used to describe these calculations, the NHTSA hereby revises the language to improve its clarity. The new wording in no way modifies the meaning of §5.1.4.3(a) (2) and §5.1.5.2(a) (2).

Ford Motor Company, Wagner, and Mercedes-Benz requested reconsideration of the decision to defer for 1 year the requirement of §5.3.1(b) that specifies a brake fluid level indicator. Ford and Wagner requested that the indicator be permanently deleted from the requirements in view of expense and reliability problems, claiming that its function is adequately served by the pressure differential warning that is also required by the standard.

The fluid level indicator detects and signals a loss of fluid from the system, whether the loss is swift or gradual. In the event of such a dan-

gerous condition, the vehicle operator is warned early that braking function will be lost in the future. Unlike the pressure differential indicator, the fluid level indicator warns the operator before one subsystem is effectively depleted of all fluid, and permits a repair to be undertaken before braking is lost. The indicator would also signal leakage at a wheel cylinder which could contaminate brake linings and create a side-to-side imbalance in braking.

At the same time, the petitions raise questions about the reliability, availability, and cost of these devices that cannot be answered without further data. The NHTSA is in the process of gathering these data, and for this reason is unable to respond to these two petitions within the 120-day period established for actions on petitions for reconsideration. The NHTSA anticipates publication of its response no later than October 31, 1975.

Mercedes-Benz argued that the 1-year deferral of the brake fluid level indicator discriminated against those manufacturers who presently provide such a device to meet the present Standard No. 105 (49 CFR 571.105). As interpreted, Standard No. 105 specifies a pressure differential indicator (used by most manufacturers) or a fluid level indicator (used by Mercedes) to signal a complete hydraulic-type failure of a partial system. Mercedes asked that the new standard be modified to continue this manufacturer option until both systems are required, reasoning that either system provides an equal safety benefit.

As noted in the earlier discussion, a review of the benefits found in one warning indicator that are not found in the other demonstrates that there are separate and significant benefits in each warning. The new hydraulic brake standard

specifies both warnings for this reason. The fluid level indicator was deferred only because of unresolved reliability and availability issues. The pressure differential indicator is a proven and available device which can be incorporated in vehicles at reasonable cost. While the NHTSA does not wish to encourage removal of Mercedes' fluid level indicator, it has decided that all passenger cars should be equipped with the pressure differential indicator. For these reasons, Mercedes' petition is denied.

In an area unrelated to the rulemaking which underlies this response to petitions for reconsideration, Toyota Motor Sales, Inc., has requested confirmation that S5.3.2 of the standard requires a check of the brake system indicator lamp function only when the transmission shift lever is in the "P" (park) or "N" (neutral) position (in the case of vehicles with automatic transmission). The literal wording of S5.3.2 requires a check of lamp function without regard to the position of the transmission shift lever, whenever the ignition switch is turned to the "on" position when the engine is not running, or when the ignition switch is in a position between "on" and "start" that is designated by the manufacturer as a check position. In the case of vehicles with an automatic transmission, however, this wording does not reflect the NHTSA's intent with

respect to the check function. To properly reflect this intent, the language of S5.3.2 is hereby modified in accordance with Toyota's request. This is an interpretative ruling, adding no additional burden on any person, concerning which the NHTSA finds that notice and opportunity for comment are unnecessary, under provisions of the Administrative Procedures Act (5 U.S.C. § 553(b)(3)(A)).

In a separate area, the date of September 1, 1975, appearing in S7.4.2.1 of the standard is changed to January 1, 1976, to conform to the standard's new effective date.

In consideration of the foregoing, Standard No. 105-75 (49 CFR 571.105-75) is amended. . . .

*Effective date:* September 17, 1975. Because this amendment relieves a restriction and imposes no additional burden on any person, it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 103, 119 Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on September 11, 1975.

James B. Gregory  
Administrator

**40 F.R. 42872**  
**September 17, 1975**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket No. 75-11; Notice 2)

This notice amends Standard No. 105-75, *Hydraulic Brake Systems*, 49 CFR 571.105-75, to permit the manufacture of hydraulic-braked vehicles without split service brake systems as long as they are capable of meeting additional stopping requirements in the event of failure in the service brake system. A proposal of this modification was published May 12, 1975, (40 FR 20641), in response to petitions from Citroen Automobile Company, Maserati, S.P.A., and Volkswagen of America, Inc.

The three vehicle manufacturers requested modifications of Standard No. 105-75 (effective January 1, 1976) because its present requirement for a split service brake system (S5.1) would prevent the development and sale of vehicles utilizing a central hydraulic system with a single pump. The split system has two or more separate subsystems, each operating indefinitely in the event of a failure in another subsystem, and is required as a safety measure to ensure that at least one-half of the braking system will remain operational if any single failure occurs. The central hydraulic system used by Citroen employs a single pump to supply power to both front brakes and rear brakes. The petitions suggested and the NHTSA tentatively agreed that this type of central hydraulic system, which offers a limited number of stops upon a single failure, provides warning and reserve braking capabilities equivalent in safety to a split system. The petitioners asserted that the danger of operating indefinitely on one-half of a split system is as great as that of operating a central hydraulic system beyond its reserve capability.

The responses to the proposal (including approximately 30 endorsements from owners of Citroen vehicles which employ the central hy-

draulic system) generally supported the amendment to provide additional design flexibility in meeting Standard No. 105-75. Citroen, which intends to import passenger cars with central hydraulic systems, supported the proposal with one exception. The company pointed out that the special warning system specified in the proposal to accompany the central hydraulic system was technically unfeasible and conflicted with the existing requirements for warning systems in vehicles equipped with brake power units (S5.3.1). The same problem was raised by Clayton Dewandre Company Limited, a manufacturer of brake systems for trucks, and Volkswagen of America. Essentially, central hydraulic systems are designed to operate within a pressure range, with intermittent pump operation to restore the system accumulators to the higher pressure of the ranges as energy is used in braking or other hydraulic systems. A pressure sensor would be unable to distinguish the type of pressure drop experienced in this normal operation from that resulting from a rupture or leakage-type failure. Only after the pressure dropped below the pump "cut-in" pressure could the sensor experience an abnormal pressure level signifying system failure.

The proposal, in contrast, would have required a warning as soon as any leakage or rupture occurs, before the abnormal pressure drop would be sensed. To revise the requirement in practical terms, the NHTSA amends the standard to eliminate the conflict between the proposed requirement and the existing requirement of S5.3.1(a)(4) for a warning when the supply pressure in a brake power unit drops to some level not less than one-half of the normal system pressure.

The amendment is placed in the same section of the standard as other requirements for warning systems (S5.3) to improve the coherence of the entire standard and to clarify that the pressure warning required on central hydraulic systems is not redundant or in conflict with the warnings called for in S5.3.1(a).

For the same reason, the proposed requirement for additional stopping capability in central hydraulic systems is placed in the same section as the requirement for partial failure system performance of split service brake systems (S5.1.2). Also, the partial failure test procedures for central hydraulic systems have been consolidated into the test procedures for split service brake systems in S7.9.1.

Citroen, Volkswagen, and Clayton Dewandre stressed that the delay of warning signal necessitates a more fundamental modification of the proposed requirement for additional stopping capabilities. The proposal would have specified that the warning signal be activated as soon as the failure occurred, followed by a back-up capability of 10 stops from 60 mph. Now that the signal has been specified as occurring somewhat after the failure (when abnormal pressure loss can be sensed), the 10-stop capability must be required subsequent to activation of the signal so that braking capability is available to the driver for a reasonable time after he has been warned that a malfunction has occurred. Citroen, the only manufacturer that expects to manufacture vehicles subject to these requirements at this time, states that its system is entirely capable of providing 10-stops from 60 mph after the warning system activates. For this reason, the NHTSA considers it appropriate to amend the warning system requirement so that the 10-stop capability is available following activation of the signal.

The NHTSA also proposed a clarification of the test procedures for brake power unit failure (S7.10.2(b)). No comments addressed this matter, and the proposed change expanded slightly, is made final by this notice.

Citroen suggested that a brake fluid level indicator be specified as an additional safety system on central hydraulic systems, noting that such an indicator will become a requirement for vehicles with master cylinder reservoirs (as of September

1, 1976). Wagner Electric Corporation recommended that a "system energy monitoring device" be specified so that volume as well as pressure would be monitored, arguing that a pressure indicator alone will not indicate a failure of the charging device in an accumulator. Clayton Dewandre suggested that if a split service brake system is no longer required, then the brake system should be better protected against failures of non-brake systems (suspension, power steering) that are connected to the brake system.

The NHTSA considers each of these suggestions to have possible merit and contemplates a new proposal to treat these issues and provide for full opportunity for comment by interested persons. At this time, however, it is considered necessary to implement the amendments that will permit production of vehicles without split service brake systems under Standard No. 105-75.

Both Wagner Electric and General Motors questioned the part of the preamble to the proposal that stated, "The [Citroen] response indicates that the Citroen system is not responsible for a greater percentage of accidents than a conventional system." Both companies felt that the submitted information did not form a statistically adequate basis for that conclusion. The NHTSA agrees. The statement in question was only intended to report Citroen's evaluation of the material it submitted in support of its petition, and not to present a conclusion of the NHTSA.

In consideration of the foregoing, Standard No. 105-75 (49 CFR 571.105-75) is amended. . .

*Effective date:* October 10, 1975. Because these amendments have the effect of permitting actions that previously were prohibited, it is found for good cause shown that an effective date sooner than 30 days following publication in the *Federal Register* is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegations of authority at 49 CFR 1.51).

Issued on Oct. 3, 1975.

Gene G. Mannella  
Acting Administrator

**40 F.R. 47789**  
**October 10, 1975**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket No. 75-27; Notice 2)

This notice amends Standard No. 105-75, *Hydraulic Brake Systems*, 49 CFR 571.105-75, to revise the parking brake test procedure (S7.7). In addition, this notice amends Subpart B of Part 575, *Consumer Information*, 49 CFR § 575.101, by replacing the present test procedures in that section for passenger car testing with equivalent procedures from Standard No. 105-75.

The NHTSA proposed a modification of the parking brake test procedures in Standard No. 105-75 to permit a reapplication of the parking brake if the first application of the brake failed to hold the vehicle stationary on the test incline. Toyo Kogyo requested the modification as representative of normal driver action (in cases where the application appears to be insufficient to hold the vehicle), justifying the change as necessary to permit new vehicle components to stretch or "set" during the initial application as occurs in any vehicle delivered to a purchaser. The NHTSA agreed that reapplication would be a reasonable test procedure and proposed a revision of S7.7.

Comments were received from Toyo Kogyo, General Motors, American Motors Corporation, and Chrysler Corporation in support of the change. No comments were received that objected to the proposal. The standard is amended accordingly.

The NHTSA also proposed that the consumer information item requiring publication of the stopping ability of passenger cars and motorcycles (49 CFR § 575.101) be modified for passenger cars so that test data developed under Standard No. 105-75 could be the basis for the required consumer information. The existing test procedures of the consumer information item

would be replaced by Standard No. 105-75 test procedures, and a transition period until January 1, 1977, would be provided to allow manufacturers latitude in adopting the new procedures.

The Motor Vehicle Manufacturers Association (MVMA), Chrysler Corporation, American Motors Corporation, Ford Motor Company, and General Motors Corporation supported the modifications. The MVMA and Ford pointed out an inadvertent omission in the proposal of a required change in the present loading specification (maximum loaded vehicle weight) to the Standard No. 105-75 loading specification (gross vehicle weight rating (GVWR)). No comments opposed the modification, and the consumer information item is therefore amended as proposed, with the additional modification noted by the MVMA and Ford. The transition period for use of either loading specification conforms to the transition period for use of either test procedure (until January 1, 1977). The MVMA asked for a June 1, 1977, date for transition to the new loading specification but did not explain the need for more time. The NHTSA will consider any data on this subject submitted by the MVMA.

With regard to test loading, Chrysler Corporation repeated a request for revision of the loading conditions of Standard No. 105-75. The request was earlier submitted improperly as a petition for reconsideration of an NHTSA action which did not deal with test loading (40 FR 24525, June 9, 1975). Section 553.35 of NHTSA regulations (49 CFR 553.35) allows petitions for reconsideration of rules issued by the NHTSA, but in this case no rule was issued on test loading that could form the basis for reconsideration. The NHTSA discussed Chrysler's

request at a meeting with Chrysler officials on August 21, 1975. Based on the limited information presented by Chrysler at that meeting, the NHTSA has concluded that a reduction in test weight would not be justified. At the meeting it was agreed that Chrysler would submit any additional data it had in support of the request. To date no data have been received, and the NHTSA cannot meaningfully reconsider Chrysler's request without further data.

The NHTSA also proposed modification of the means for establishing the skid number of the surface on which stopping distance tests are conducted in Standard No. 105-75, Standard No. 121, *Air Brake Systems*, Standard No. 122, *Motorcycle Brake System*, and the Consumer Information Item on brake performance. Comments received were not in agreement on how to accomplish the transition from the former ASTM method to the new one. The skid number proposal will therefore be treated separately at a later date so that its resolution will not delay

this amendment of the parking brake and consumer information item test procedures.

In consideration of the foregoing, amendments are made in Chapter V of Title 49, Code of Federal Regulations. . . .

*Effective date:* January 6, 1976. Because these amendments, to the extent that they impose new substantive requirements, are made optional for an interim period, and because manufacturers must plan future testing based on the test procedures as they exist in the present standard, it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 103, 119 Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51).

Issued on December 31, 1975.

James B. Gregory  
Administrator  
**41 F.R. 1066**  
**January 6, 1976**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75****Hydraulic Brake Systems****(Docket No. 75-7; Notice 2)**

This notice amends Standard No. 105-75, *Hydraulic Brake Systems*, 49 CFR 571.105-75, to extend its applicability to school buses and to establish performance levels for this vehicle category.

The NHTSA proposed applicability of the hydraulic brake standard to school buses (40 FR 18469, April 28, 1975) in satisfaction of the mandate of the Motor Vehicle and Schoolbus Safety Amendments of 1974 (Pub. L. 93-492) to issue safety standards for school bus operating systems (15 U.S.C. § 1392(i)(1)(A)). The Act established a strict schedule for promulgation of the standards, requiring their effectiveness 9 months following promulgation. With a view to this limited leadtime, the NHTSA proposed performance levels based on Society of Automotive Engineers (SAE) recommended practices that reflect the better existing school bus designs. Permissible pedal force values and fade and recovery performance were proposed at somewhat more stringent levels than the SAE practice, in view of the "stop-and-go" duty cycle of school buses, and the high incidence of women as school bus operators.

Commenters generally supported extension of the hydraulic brake standard to school buses. The American Mutual Insurance Alliance supported the standard as proposed. The California Highway Safety Foundation and Action for Child Transportation Safety (ACTS) advocated early implementation of requirements for all hydraulic-braked trucks, buses and multipurpose passenger vehicles to improve their braking compatibility with school buses and passenger cars. The California Department of Highway Patrol (CHP) expressed concern that any bus could

be converted into a school bus after sale, and that all buses should therefore be required to meet minimum braking requirements. The NHTSA is presently preparing rulemaking for hydraulic-braked trucks, buses, and MPV's, and these comments are being taken into consideration. In view of the Congressional mandate for swift implementation of school bus standards, however, this rulemaking is being made final largely as it was proposed.

The NHTSA proposed a level of service brake system performance generally based on SAE values, both for school buses of 10,000 pounds gross vehicle weight rating (GVWR) or less, and for school buses with a GVWR or more than 10,000 pounds. Wagner Electric Corporation, Chrysler Corporation, International Harvester Co., and Ford Motor Company asked for relaxation of the requirements, while the Vehicle Equipment Safety Commission (VESC) and ACTS requested more stringent requirements. General Motors supported the requirements for buses with a GVWR of 10,000 pounds or less.

The first effectiveness test (S5.1.1.1) measures the stopping ability of the service brake system as it is delivered to the user before it has been burnished (broken in) through use. Wagner argued that this test is unnecessary and therefore wasteful because the stringency of later tests assures the adequacy of the "green" braking components to stop the vehicle. The company cited variables in the unconditioned components that make it "... unrealistic to assume that exact brake performance can be predicted or that test results can be repeated without the thermal and mechanical conditioning of these surfaces."

It is the NHTSA's intent in the first effectiveness test to assure a safe vehicle in the hands of the user from the moment of delivery. The same variables cited by Wagner that make prediction of test results difficult could also make performance in the hands of the user unpredictable, unless the design is carefully controlled. The NHTSA concludes that the first effectiveness requirement is a reasonable method of ensuring adequate new-vehicle performance, and denies Wagner's request to delete this requirement.

Chrysler and Ford recommended increasing the first effectiveness stopping distances at 30 mph for school buses with a GVWR of 10,000 pounds or less. Both argued that vehicles take significantly longer to stop in an unburnished condition and therefore the required stopping distance for first effectiveness should be longer than the second effectiveness requirement. The NHTSA established the unburnished stopping distance requirements based on tests of vehicles by NHTSA contractors and its Safety Research Laboratory. The NHTSA has reexamined its test results in view of manufacturer comments, and has determined that the complying distances recorded were not generated in all cases at the "worst case" weight at which a vehicle could be tested. For this reason, and because of the variability noted above, the NHTSA has increased the first effectiveness stopping distances for school buses of 10,000 pounds GVWR or less to 69 feet. This change represents a 1 fpsps decrease in average deceleration rate from the second effectiveness value, as is the case for passenger cars.

In the case of vehicles with a GVWR of more than 10,000 pounds, Wagner, Chrysler, and International Harvester requested longer stopping distances at 30 mph. The VESC and ACTS requested the same stopping distances for heavy school buses as for lighter ones. The NHTSA proposed more stringent low-speed stopping requirements than the SAE values to remain consistent with existing requirements of the National Conference on School Transportation, the State of California, and the Bureau of Motor Carrier Safety. International Harvester pointed out that, while the distances are comparable, the requirements are in fact more stringent because of

the "no lockup" requirement and the limits on pedal control force in Standard No. 105-75. In view of these variations from existing 30-mph stopping distance requirements, and the less effective braking encountered prior to burnish, the first effectiveness stopping distance at 30 mph is increased from 81 feet to 88 feet. In terms of deceleration rate, this 7-foot increase is comparable to the 4-foot increase for light school buses. Stopping distance requirements other than 30-mph first effectiveness values are adopted as proposed.

The second effectiveness test (S5.1.1.2) is of the service brake system following burnish of the brakes and with the vehicles loaded to its GVWR. Comments were received from Wagner and International Harvester on the distance established for 30-mph stops, and from the VESC and ACTS on the full range of stopping distance requirements, for both light and heavy school buses. International made the same point that it made for other stopping distance tests: that the low-speed distances chosen as comparable to existing requirements are somewhat more difficult due to Standard No. 105-75's specification of "no lockup" and pedal control force limits. In this case, however, the value chosen is far less demanding than that for the unburnished brakes, and the factors cited by International are not as crucial.

Wagner assumed that the NHTSA, in adopting existing school bus "equivalent distance" performance requirements for actual road tests, had not compensated for the fact that existing standards refer to deceleration rates measured by inertial decelerometers. Actually, the NHTSA did apply correction factors to compensate for this fact. Wagner's request for longer distances is denied for this reason.

ACTS asked that the NHTSA set performance requirements equal to those for other vehicles that share the highway with school buses. The VESC recommended decreased stopping distances roughly comparable to values for trucks and buses in Standard No. 105-75 before the standard was indefinitely delayed (40 FR 18411, April 28, 1975). For reasons established in the preamble to that decision, the NHTSA is considering appropriate interim performance levels

for hydraulic-braked vehicles other than passenger cars, but is not prepared to specify performance levels at this time. The AOTS and VESC requests will be considered as they apply to those interim requirements, but cannot be considered in this rulemaking because they would necessitate hardware changes that cannot be effectuated prior to the October 27, 1976, statutory deadline for effectiveness of this standard.

The NHTSA proposed that second effectiveness performance requirements at speeds in excess of 60 mph not be specified for school buses. The VESC has argued that such requirements should apply to school buses if they have such high speed capability. While the NHTSA cannot promulgate requirements in this area in the short period that remains prior to the standard's mandated effectiveness, the VESC position will be considered in developing future standards for all vehicles other than passenger cars, including school buses. In view of the above, the second effectiveness distances are adopted as proposed.

No comment was received on the requirements for lightly-loaded stopping distances (S5.1.1.3) other than those already discussed with regard to the second effectiveness test, and the proposed values are therefore also adopted. The second sentence of S5.1.1.3 (referring to vehicles to which the standard is no longer applicable) is also deleted as proposed.

The fourth effectiveness test (S5.1.1.4) is of the abilities of the brake system after it has been subjected to fade and recovery testing under S5.1.4. Manufacturer comments indicated that, in the case of school buses with a GVWR greater than 10,000 pounds, use of a "hot" burnish procedure (S7.4.2.1.2) in combination with the standard's fade and recovery testing makes the fourth effectiveness test redundant. NHTSA analysis agrees with these arguments, and in view of the fact that the hot burnish option will become the only permissible method of conditioning the brakes after September 1, 1976, the proposed fourth effectiveness test for heavier school buses is not adopted.

Since use of the hot burnish procedure was an important factor in the decision to drop the fourth effectiveness requirement for vehicles over 10,000 pounds GVWR, the NHTSA denies the

Wagner petition to extend the alternative burnish procedures under S7.4.2.1 after the scheduled deletion of that option on September 1, 1976. Because this option ends before the standard's effectiveness for school buses, S7.4.2.1 has been simplified by eliminating the cold burnish procedure. (S7.4.2.1.1) that will not be used.

The NHTSA also notes General Motors' argument that the fourth effectiveness test should be eliminated for vehicle classes offered with either hydraulic or air brakes simply because there is no comparable requirement in Standard No. 121, *Air Brake Systems*. While the NHTSA agrees that vehicle classes ideally might be subjected to identical requirements whatever the method of brake actuation, formulation of any desired compatibility between hydraulic and air-braked vehicles of the same weight class must be accomplished separately from this rulemaking on school buses, which is subject to a statutory deadline. General Motors' view will be considered in future rulemaking.

The April 28 notice proposed deletion, for school buses, of the option methods for testing the service brake system in the event the brake power assist or brake power unit failed (S5.1.3). The only comment received was from the VESC, which misunderstood the proposal as deleting all tests of a failed power assist or power unit. In fact, school buses will be required to meet S5.1.3.1 as hereby amended. The VESC misunderstanding may have arisen because of unclear language used in proposing an amendment of the test procedure of S7.10 that underlies the requirement. Section S7.10 is appropriately revised in this amendment of the standard.

The NHTSA proposed more stringent fade and recovery performance for school buses than the SAE's recommended levels for other truck-type vehicles, because of the distinctive school bus duty cycle. School buses make a high number of stops compared to the truck-type vehicles which may share common components. These stops are usually made on secondary roads that often have steeper grades than the primary road system. The National School Transportation Association (NSTA) confirmed in statements before an NHTSA public meeting on hydraulic brakes that the association's experience indicated

inadequate fade resistance in some of today's school buses. While NHTSA testing indicates that some buses already conform to this requirement, other buses will be required to upgrade their brake systems to conform to this minimum performance level.

Three manufacturers objected to this performance level and each suggested a different modification of the proposed requirement to reduce its stringency. Ford requested a 200-pound allowable pedal force for the first five stops, stating that "The 60 mph fade sequence represents, in Ford's opinion, an extreme condition that would rarely, if ever, be duplicated in normal customer operation of school buses." Wagner stated "It is inconsistent to require one degree of vehicle braking for the Effectiveness Test and another (in this case, more powerful) for the Fade and Recovery. . . . We agree in the need for some measure of fade and recovery but the redundancy of two such requirements in a *minimum* standard has not been addressed. . . ." General Motors cited the good safety record of school buses, questioned the adequacy of NHTSA testing, and stated, with regard to school buses with a GVWR of more than 10,000 pounds, ". . . the NHTSA has proposed stringent fade and recovery requirements which far exceed minimum performance requirements."

"Minimum" performance standards do not equate with "minimal" performance standards, as implied by General Motors and Wagner. The word "minimum" in the statutory definition of motor vehicle safety standards (15 U.S.C. § 1391-(2)), does not refer to the substantive content of the standards but rather to their legal status—that the products covered must not fall short of them.

Wagner considered it inconsistent to specify a performance level for the fade characteristics of a braking system that would have the effect of improving another characteristic of the braking system (stopping distance performance) beyond the minimum level specified in the standard. The NHTSA disagrees, and considers it appropriate to specify the minimum fade performance necessary to assure adequate performance of brakes in stop-and-go operation, whether or not satisfaction of this minimum level results in a brake

system with better stopping distance performance than required by the standard.

While Ford is correct that the test sequence typically will not be experienced in day-to-day operations, that does not rule out the need for the improved fade characteristics suggested by the NHTSA. Each of the commenters claims that the fade and recovery characteristics do exceed the poorest performance of some existing vehicles, but none presented convincing justification for their positions that the proposed levels are inappropriate for school bus braking systems. It is also noted that school buses with a GVWR of more than 10,000 pounds no longer have to meet the high-speed or fourth effectiveness requirements. With regard to Ford's suggestion of permitting a 200-pound pedal control force, the NHTSA continues to consider a 150-pound maximum necessary in view of the large percentage of school bus operators that are women (see HSRI Report No. HuF-6, NBS Technical Note 557, October 1970, "The Brake Pedal Force Capability of Adult Females"). Accordingly, the fade and recovery performance values are promulgated as proposed. The proposed wording of S5.1.4.3(b)(2) is modified for clarity in response to Wagner's request.

The proposal included a minimum performance level for the ability of school bus brakes to perform after they are soaked with water. Three comments were received that objected to the proposed performance levels. Wagner also objected that the test conditions were stated with insufficient specificity. The width of the water trough used to wet the brakes is not specified and the width may affect the degree of wetting achieved in large truck tire sizes. The NHTSA intends to address this issue in its upcoming proposal on test intervals in the water recovery test.

For the present NHTSA will resolve differences in this test condition in the manufacturer's favor if they affect the outcome of testing.

General Motors' only objection to inclusion of a water recovery test in this standard for school buses over 10,000 pounds GVWR was that a comparable test in Standard No. 121 has not been developed. The NHTSA is not, of course, limited in the breadth of one standard by the breadth of another, whether or not they measure the same aspect of performance of a vehicle.

International was the only manufacturer to provide data indicating that its vehicles are not capable of meeting the water recovery test in all cases. The NHTSA concludes that other manufacturers' products are capable of meeting the levels established in the standard. The NHTSA denies International's request to permit a 1.5-mile "drying-off" period between wet stops, because it would negate for the most part the effect of soaking.

Therefore, the only modification of water recovery testing from that proposed is to clarify the wording of the minimum permissible control force (S5.1.5.2(b)(2)) as requested by Wagner.

The spike stop and parking brake requirements are amended as proposed.

The test procedures contained in S6.1, S6.2, S7.5, S7.7.1, and S7.10 are revised as appropriate to reflect the amended requirements.

Wagner, Ford, General Motors, and International requested that the brake fluid level indicator not be required for school buses. The NHTSA will make its decision in this area shortly and will publish its response to the issues raised in this rulemaking.

Ford also asked that the parking brake warning indicator be deleted from school bus requirements as a luxury. The NHTSA has never considered this signal to be a luxury, and considers it important to prevent a partially-applied brake from overheating, reducing its efficiency. Ford's request is therefore denied.

Wagner proposed that the present speed range for brake warning in S7.1 and S7.2 (40-to-10-mph snubs) be increased to a range of 50-to-20-mph snubs. The agency has seen no evidence in its test program of the inadequacy of present values, and therefore denies the Wagner request, which was not supported by any data.

The California Department of Highway Patrol (CHP) raised the issue of the adequacy of the standard from the enforcement perspective, particularly the complexity of the stopping distance requirements for use in vehicle-in-use inspection. As noted in a recent notice on air brakes (40 FR 56920, December 5, 1975), new vehicle braking standards may be inappropriate for a State inspection program, because they are not designed to measure degradation of equipment and performance over a period of time.

Since degradation of the brake system is not addressed by Standard No. 105-75, the CHP is not prevented by the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1392(d)) from enforcing requirements that measure the condition of the vehicle, as long as they do not dictate the design or performance of new vehicles.

The CHP recommendations for vacuum gauge and vacuum failure requirements on school buses equipped with vacuum-boosted brakes are being taken under consideration in regard to future rulemaking for truck, bus, and multi-purpose passenger vehicle hydraulic braking standards.

SWS Silicon Corporation's comments on DOT 5 brake fluid are noted, and comments of any interested person on the subject of appropriate brake fluids for school buses are solicited.

In an area unrelated to the applicability of the standard to school buses, persons have requested clarification of an amendment of the standard published September 17, 1975 (40 FR 42872). Section S5.1.5.2(a) consists of an opening paragraph, two numbered subparagraphs, and a concluding paragraph. Subparagraph "(2)" was set forth in its entirety in a revised form in that September action, and it was not clear whether the concluding paragraph that follows it remained unchanged or was eliminated in the revision. For clarification, it is noted that only the subparagraph "(2)" was revised and that the concluding paragraph remains in the standard unchanged.

In consideration of the foregoing, Standard No. 105-75 (49 CFR 571.105-75) is. . .

*Effective date:* Oct. 12, 1976. The effective date of this amendment is established as 9 months after the date of its issuance, as required by the Motor Vehicle and Schoolbus Safety Amendments of 1974, Pub. L. 93-492, section 202 (15 U.S.C. 1397(i)(1)(A)).

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); § 202, Pub. L. 93-492, 88 Stat. 1470 (15 U.S.C. 1392); delegation of authority at 49 CFR 1.50)

Issued on January 12, 1976.

James B. Gregory  
Administrator  
41 F.R. 2391  
January 16, 1976





# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket No. 70-27; Notice 18)

This notice amends Standard No. 105-75, *Hydraulic Brake Systems*, to permit a manufacturer to provide either a gross loss of pressure indicator (GLPI) or a low brake fluid level indicator (BFLI) in satisfaction of the hydraulic failure indicator requirements of S5.3.1.

This amendment of Standard No. 105-75 (49 CFR 571.105-75) was proposed in response to petitions from Ford Motor Company, Wagner Electric Corporation, and Mercedes-Benz of North America, Inc., as well as the comments of other manufacturers of hydraulic-braked motor vehicles (41 FR 2828, January 20, 1976).

Comments were received from General Motors Corporation, Bob Ingham, Jr., Chrysler Corporation, Wagner Electric Corporation, the California Department of Highway Patrol (CHP), Professor P. N. Joubert, Bendix Corporation, British Leyland UK Limited, the Vehicle Equipment Safety Commission, Ford Motor Company, Bayerische Motoren Werke, and the Department of Transport of Australia. The National Motor Vehicle Safety Advisory Council made no comment on the proposal.

All commenters except the CHP, VESC, Department of Transport of Australia, and Professor Joubert endorsed the amendment as proposed and urged its swift implementation.

The CHP recommended that the proposed option be allowed only until the availability and reliability problems associated with the BFLI are resolved, at which time the BFLI would be required on all vehicles. The VESC also recommended a requirement for both of the devices or the BFLI alone. It is the opinion of the CHP that the apparent benefit of a GLPI is not real, because the GLPI warning activates only after failure has occurred, when increased pedal travel and decreased stopping performance have al-

ready warned of the faulty condition. However, the failure of one subsystem in split system vehicles, particularly that to the rear wheels, easily may go unnoticed during the low rate-of-deceleration stops encountered in normal driving. In this vast majority of cases, the driver will be warned of the failure by the GLPI before the brake failure is apparent, a substantial benefit in averting accidents.

Each of the four commenters who did not support the proposal found fault with the NHTSA's use of the extremely limited accident data from the Indiana University Institute for Research in Public Safety study (*Tri-Level Study of the Causes of Traffic Accidents*, DOT-HS-801-335, January, 1975). The four commenters apparently interpreted Notice 17 to mean that the NHTSA had concluded, based on this small amount of data, that the BFLI was not cost-effective. Such is not the case. The NHTSA's evaluation of the Indiana study only concluded that its earlier judgement that both warnings were justified was cast in some doubt by the limited data generated since that initial decision was made. The NHTSA believes that the doubt is sufficient to justify dropping the simultaneous requirement for both devices.

As noted by the CHP, the accident data are not yet available to quantitatively prove the comparative benefits of one warning system over the other. Although the four dissenting commenters expressed a preference for the BFLI, the NHTSA feels that there is insufficient evidence of its superiority to mandate its use in place of the GLPI. The NHTSA believes that a continuation of the option previously available under Standard No. 105 is in the public interest.

Ford Motor Company pointed out that the proposed wording of S7.9.1, which refers to a

"brake system failure indicator," was inconsistent with other references in the standard, and suggested that the word "failure" be removed. The reference has been changed to read "brake system indicator lamp" to be consistent with S5.3. Section S7.9.4 also is reworded for the same reason.

In a matter unrelated to the BFLI proposal, the agency hereby corrects an inadvertent omission of a conforming amendment that should have accompanied the major amendment making the standard applicable to school buses (41 FR 2391, January 16, 1976). The reference to "S7.4.2.1.2" in S6 is changed to "S7.4.2.1."

In consideration of the foregoing, Standard No. 105-75 (49 CFR 571.105-75) is amended. . .

*Effective date:* April 22, 1976. Because this amendment creates no additional requirements for any person and because of the manufacturers' need to know as soon as possible the vehicle requirements for the upcoming model year for planning purposes, it is found that an immediate effective date is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on April 14, 1976.

James B. Gregory  
Administrator

**41 F.R. 16803**  
**April 22, 1976**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75****Hydraulic Brake Systems****(Docket No. 75-27; Notice 4)**

This notice amends Standard No. 105-75, *Hydraulic Brake Systems*, and Standard No. 122, *Motorcycle Brake Systems*, to modify the means for establishing the frictional resistance of the surface on which stopping distance tests are conducted. A similar amendment is made to Part 575, *Consumer Information*, of Title 49 of the Code of Federal Regulations.

The National Highway Traffic Safety Administration (NHTSA) proposed the change in Standard No. 105-75 (49 CFR 571.105-75), Standard No. 121, *Air Brake Systems* (49 CFR 571.121), Standard No. 122 (49 CFR 571.122), and the Consumer Information Regulations (49 CFR 575.101) in response to a petition from British-Leyland Motors Limited (40 FR 45200, October 1, 1975). The existing test procedure in these regulations has specified use of the American Society for Testing and Materials (ASTM) E-274-65T procedure, using an ASTM E249 tire that is no longer manufactured.

Responses were received on the proposed ASTM change from White Motor Corporation (White), Mack Trucks, Inc. (Mack), Freightliner Corporation (Freightliner), Ford Motor Company (Ford), General Motors Corporation (GM), Chrysler Corporation (Chrysler), American Motors Corporation (AMC), and International Harvester (IH). The National Motor Vehicle Safety Advisory Council made no comment on the proposal.

Most commenters supported use of the new test procedure and tire, although they differed in recommendations for correlating the reading produced under the new procedure with that produced under the old procedure. Manufacturers are presently certifying compliance to brake standards on test surfaces with a satisfactory reading under the old procedure, and they should

be able to continue testing and certifying compliance on the same surface without any increase in the severity of the tests. To accomplish this transition, the correlation in readings between the procedures has been determined, and the difference is reflected in a change of the dry surface value from "skid number" 75 to "skid number" 81.

Freightliner urged postponement of any action until it could be supported by "adequate and statistically reliable test data." AMS also recommended that the NHTSA do nothing "until the industry has had sufficient time to evaluate and verify the performance of the ASTM E501 test tire on all types of surfaces."

The change in procedure is prompted by the ASTM decision to utilize a new tire in ascertaining the frictional coefficient of test surfaces. As a result the old tire is no longer manufactured and only the new tire is available for skid number measurement. Manufacturers have conducted comparative tests with the new tire to determine the correlation between the readings given by the two tires. Neither Freightliner nor AMC submitted data showing that the agency's proposal to adjust the dry surface skid number upwards is unjustified. Only Mack submitted data and it supported the NHTSA and Federal Highway Administration test data that have been placed in the docket. General Motors considered the agency's proposed upward adjustment to be the maximum desirable based on its data. International Harvester, Chrysler, and Ford supported the change in dry surface skid number without qualification, and White suggested that a skid number of 85 be utilized. The agency finds that the AMC and Freightliner requests for further delay are unjustified.

Ford and Freightliner asked that the skid number for the lower coefficient (wet) surface also be adjusted. The agency's purpose in proposing the adjustment is limited to changes necessary to avoid a modification of the test surfaces or an increase in the severity of performance levels specified under the safety standards. The NHTSA earlier concluded that change of the wet surface specification was unnecessary, and no evidence has been supplied that would modify the earlier determination.

General Motors noted that an editorial change to the newer ASTM procedure does not appear in early publications of that procedure. To put all interested persons on notice of the editorial change, the NHTSA has included the change in its references to the ASTM E274-70 procedure.

Freightliner asserted that the newer procedure included modification of a formula that justified a larger upwards adjustment than that proposed by the agency. Actually, the modifications only corrected an error in the earlier formula which had no effect on the determination of frictional coefficient. Manufacturers either utilized a test trailer that obviated the need for calculations using the formula, or were aware of the error and corrected for it in their calculations. Thus the adjustment requested by Freightliner is not warranted.

In accordance with recently-enunciated Department of Transportation policy encouraging adequate analysis of the consequences of regulatory action (41 FR 16201, April 16, 1976), the agency herewith summarizes its evaluation of the economic and other consequences of this amendment on the public and private sectors, including possible loss of safety benefit. Because the new references to procedures and a test tire are expected to accord with existing practices, the amendment is judged not to have any significant

impact on costs or benefits of the standards and consumer information item that are modified by the change.

Standard No. 121, *Air Brake Systems*, is presently subject to judicial review under § 105(a) of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. § 1394(a)). The U.S. Court of Appeals hearing the petition for review has indicated that it prefers to review the standard as it presently exists, without unnecessary amendment. To the degree possible, the agency is complying with that request and therefore, in the case of Standard No. 121, will delay the update of ASTM procedure until review is completed.

It is noted that this change in procedure for ascertaining the frictional resistance of the test surface does not invalidate data collected using the older procedure, and manufacturers can presumably certify on the basis of stopping distance tests conducted on surfaces measured by the old tire.

In consideration of the foregoing, amendments are made in Chapter V of Title 49, Code of Federal Regulations.

*Effective date:* June 14, 1976. Because the older test tire is no longer manufactured, and because the amendment of procedure and test tire is intended only to duplicate the existing procedure and tire, this amendment creates no additional requirements for any person, and an immediate effective date is found to be in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on June 8, 1976.

James B. Gregory  
Administrator

41 F.R. 24592  
June 17, 1976

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75

## Hydraulic Brake Systems

(Docket Nos. 75-7; 75-16; Notices 3, 9)

This notice republishes in their entirety Standard No. 105-75, *Hydraulic Brake Systems*, and Standard No. 121, *Air Brake Systems*, because the number and complexity of recent amendments to these standards may have created confusion for some interested persons.

Standard No. 105-75 (49 CFR 571.105-75) was issued September 1972 (37 FR 17970, September 2, 1972) and has been amended numerous times since issuance. Although an up-to-date and complete text of the standard appears each year in the republished Code of Federal Regulations, several complex amendments have been made to the standard in the past year that are not reflected in the most recent up-to-date text. To assist interested persons who must be certain of the text's provisions, the agency herewith publishes the standard in its entirety. Interested persons are advised that amendments of Standard No. 105-75 may occur in the future, although no proposals are outstanding at this time.

In a related matter, General Motors Corporation has brought to the agency's attention an inadvertent deletion of one sentence from one section of Standard No. 105-75. A statement was added to the text of S5.1.5.2(a)(2) to permit an interim increase in permissible control force for the fifth wet recovery stop (40 FR 24525, June 9, 1975). Inadvertently, this sentence was deleted from S5.1.5.2(a)(2) in a subsequent rulemaking action (40 FR 42872, September 17, 1975), although the preamble to the notice made clear that "The new wording in no way modifies the meaning of S5.1.4(a)(2) and S5.1.5.2(a)(2)." To correct this omission, the sentence appears in this publication. It has

been moved to S5.1.5.2(a)(1) because it concerns the maximum pedal force limit in that section, rather than the minimum pedal force limit in S5.1.5.2(a)(2) where it appeared in the past.

Standard No. 121 (49 CFR 571.121) was issued in February 1971 (36 FR 3817, February 27, 1971) and has also been amended numerous times since issuance. Several amendments have occurred since the most recent publication of the standard in its entirety. For the reasons cited with regard to Standard No. 105-75, the agency herewith publishes the standard in its entirety. Interested persons are advised that three proposals to amend the standard are outstanding (40 FR 45200, October 1, 1975) (40 FR 56920, December 5, 1975) (41 FR 20706, May 20, 1976) and that amendments to the text of the standard may be made in the future.

It has also been noted that a clarification could be made to the language of S3 of the standard that excludes until September 1, 1977, vehicles that combine with other vehicles to form auto transporters. The temporary exclusion was added to the standard in January 1975 (40 FR 1246, January 7, 1975). To make the effect of that action more clear, the language in the second sentence of the text "or to any vehicle which" is changed in this republication to read "or that." This modification of the language has no effect on the requirements of this standard and notice and opportunity to comment are therefore found to be unnecessary.

In consideration of the foregoing, Standard No. 105-75 (49 CFR 571.105-75) and Standard No. 121 (49 CFR 571.121) are republished to read as set forth below.

**Effective: July 19, 1976**

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718  
(15 U.S.C. 1392, 1407); delegations of authority  
at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on June 30, 1976.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**41 F.R. 29696**  
**July 19, 1976**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 105-75****Hydraulic Brake Systems**

(Docket No. 73-03; Notice 7); (Docket No. 73-20; Notice 10);

(Docket No. 73-34; Notice 4); (Docket No. 75-02; Notice 3);

(Docket No. 75-03; Notice 5); (Docket No. 75-07; Notice 3);

(Docket No. 75-24; Notice 3)

This notice announces that the effective dates of the redefinition of "school bus" and of six Federal motor vehicle safety standards as they apply to school buses are changed to April 1, 1977, from the previously established effective dates. This notice also makes a minor amendment to Standard No. 220, *School Bus Rollover Protection*, and adds a figure to Standard No. 221, *School Bus Body Joint Strength*.

The Motor Vehicle and Schoolbus Safety Amendments of 1974 (the Act) mandated the issuance of Federal motor vehicle safety standards for several aspects of school bus performance, Pub. L. 93-492, § 202 (15 U.S.C. § 1392 (i) (1) (A)). These amendments included a definition of school bus that necessitated a revision of the existing definition used by the NHTSA in establishing safety requirements. The Act also specified that the new requirements "apply to each schoolbus and item of schoolbus equipment which is manufactured . . . on or after the expiration of the 9-month period which begins on the date of promulgation of such safety standards." (15 U.S.C. § 1392 (i) (1) (B)).

Pursuant to the Act, amendments were made to the following standards: Standard No. 301-75, *Fuel System Integrity* (49 CFR 571.301-75), effective July 15, 1976, for school buses not already covered by the standard (40 FR 483521, October 15, 1975); Standard No. 105-75, *Hydraulic Brake Systems* (49 CFR 571.105-75), effective October 12, 1976 (41 FR 2391, January 16, 1976); and Standard No. 217, *Bus Window Retention and Release* (49 CFR 571.217), effective

for school buses on October 26, 1976 (41 FR 3871, January 27, 1976).

In addition, the following new standards were added to Part 571 of Title 49 of the Code of Federal Regulations, effective October 26, 1976: Standard No. 220, *School Bus Rollover Protection* (41 FR 3874, January 27, 1976); Standard No. 221, *School Bus Body Joint Strength* (41 FR 3872, January 26, 1976); and Standard No. 222, *School Bus Passenger Seating and Crash Protection* (41 FR 4016, January 28, 1976). Also, the existing definition of "school bus" was amended, effective October 27, 1976, in line with the date set by the Act for issuance of the standards.

The Act was recently amended by Public Law 94-346 (July 8, 1976) to change the effective dates of the school bus standards to April 1, 1977 (15 U.S.C. § 1392 (i) (1) (B)). This notice is intended to advise interested persons of these changes of effective dates. In the case of Standard No. 301-75, the change of effective date is reflected in a conforming amendment to S5.4 of that standard. A similar amendment is made in S3 of Standard No. 105-75.

The agency concludes that the October 27, 1976, effective date for the redefinition of "school bus" should be postponed to April 1, 1977, to conform to the new effective dates for the upcoming requirements. If this were not done, the new classes of school buses would be required to meet existing standards that apply to school buses (e.g., Standard No. 108 (49 CFR 571.108)) before being required to meet the new standards. This would result in two stages of compliance,

and would complicate the redesign efforts that Congress sought to relieve.

This notice also amends Standard No. 220 in response to an interpretation request by Blue Bird Body Company, and Sheller-Globe Corporation's petition for reconsideration of the standard. Both companies request confirmation that the standard's requirement to operate emergency exits during the application of force to the vehicle roof (S4(b)) does not apply to roof exits which are covered by the force application plate. The agency did not intend to require the operation of roof exits while the force application plate is in place on the vehicle. Accordingly, an appropriate amendment has been made to S4(b) of the standard.

With regard to Standard No. 220, Sheller-Globe also requested confirmation that, in testing its school buses that have a gross vehicle weight rating (GVWR) of 10,000 pounds or less, it may test with a force application plate with dimensions other than those specified in the standard. The standard does not prohibit a manufacturer from using a different dimension from that specified, in view of the NHTSA's expressed position on the legal effect of its regulations. To certify compliance, a manufacturer is free to choose any means, in the exercise of due care, to show that a vehicle (or item of motor vehicle equipment) would comply if tested by the NHTSA as specified in the standard. Thus the force application plate used by the NHTSA need not be duplicated by each manufacturer or compliance test facility. Sheller-Globe, for example, is free to use a force application plate of any width as long as it can certify its vehicle would comply if tested by the NHTSA according to the standard.

In a separate area, the agency corrects the inadvertent omission of an illustration from Standard No. 221 as it was issued January 26, 1976 (41 FR 3872). The figure does not differ from that proposed and, in that form, it received no adverse comment.

In accordance with recently-enunciated Department of Transportation policy encouraging

adequate analysis of the consequences of regulatory action (41 FR 16200, April 16, 1976), the agency herewith summarizes its evaluation of the economic and other consequences of this action on the public and private sectors, including possible loss of safety benefits. The changes in effective dates for the school bus standards are not evaluated because they were accomplished by law and not by regulatory action.

The change of effective date for the redefinition of "school bus" will result in savings to manufacturers who will not be required to meet existing school bus standards between October 27, 1976, and April 1, 1977. The agency calculates that the only standard that would not be met would be the requirement in Standard No. 108 for school bus marker lamps. In view of the agency's existing provision for the markings of eight school buses in Pupil Transportation Standard No. 17 (23 CFR 1204), it is concluded that the absence of this equipment until April 1, 1977, will not have a significant adverse impact on safety.

The interpretative amendment of Standard No. 220 and the addition of a figure to Standard No. 221 are not expected to affect the manufacture or operation of school buses.

In consideration of the foregoing, Part 571 of Title 49 of the Code of Federal Regulations is amended. . . .

*Effective dates:*

1. Because the listed amendments do not impose additional requirements of any person, the National Highway Traffic Safety Administration finds that an immediate effective date of August 20, 1976 is in the public interest.
2. The effective date of the redefinition of "school bus" in 49 CFR Part 571.3 that was published in the issue of December 31, 1976 (40 FR 60033) is changed to April 1, 1977.
3. The effective dates of Standard Nos. 105-75, 217, 301-75, 220, 221, and 222 (as they apply to school buses) are April 1, 1977, in accordance with Public Law 94-346.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); Pub. L. 94-346, Stat.



**Effective: August 26, 1976**

(15 U.S.C. § 1392(i)(1)(B)); delegation of  
authority at 49 CFR 1.50.)

Issued on August 17, 1976.

John W. Snow  
Administrator

**41 F.R. 36026**  
**August 26, 1976**



## MOTOR VEHICLE SAFETY STANDARD NO. 105-75

### Hydraulic Brake Systems

**S1. Scope.** This standard specifies requirements for hydraulic service brake and associated parking brake systems.

**S2. Purpose.** The purpose of this standard is to insure safe braking performance under normal and emergency conditions.

**S3. Application.** This standard applies to passenger cars equipped with hydraulic service brake systems, and to school buses manufactured on and after April 1, 1977, with hydraulic service brake systems.

**S4. Definitions.** "Antilock system" means a portion of a service brake system that automatically controls the degree of rotational wheel slip at one or more road wheels of the vehicle during braking.

"Backup system" means a portion of a service brake system, such as a pump, that supplies energy in the event of a primary brake power source failure.

"Brake power assist unit" means a device installed in a hydraulic brake system that reduces the operator effort required to actuate the system, and that if inoperative does not prevent the operator from braking the vehicle by a continued application of muscular force on the service brake control.

"Brake power unit" means a device installed in a brake system that provides the energy required to actuate the brakes, either directly or indirectly through an auxiliary device, with the operator action consisting only of modulating the energy application level.

"Hydraulic brake system" means a system that uses hydraulic fluid as a medium for transmitting

force from a service brake control to the service brake, and that may incorporate a brake power assist unit, or a brake power unit.

"Initial brake temperature" means the average temperature of the service brakes on the hottest axle of the vehicle 0.2 miles before any brake application.

"Lightly loaded vehicle weight" means:

(a) for vehicles with a GVWR of 10,000 pounds or less, unloaded vehicle weight plus 300 pounds (including driver and instrumentation);

(b) for vehicles with a GVWR greater than 10,000 pounds, unloaded vehicle weight plus 500 pounds (including driver and instrumentation).

"Parking mechanism" means a component or subsystem of the drive train that locks the drive train when the transmission control is placed in a parking or other gear position and the ignition key is removed.

"Pressure component" means a brake system component that contains the brake system fluid and controls or senses the fluid pressure.

"Skid number" means the frictional resistance of a pavement measured in accordance with American Society for Testing and Materials (ASTM) Method E-274-70 (as revised July, 1974) at 40 mph, omitting water delivery as specified in paragraphs 7.1 and 7.2 of that method.

"Strib" means the braking deceleration of a vehicle from a higher reference speed to a lower reference speed that is greater than zero.

"Spike stop" means a stop resulting from the application of 200 pounds of force on the service brake control in 0.08 second.

"Split service brake system" means a brake system consisting of two or more subsystems actuated by a single control designed so that a leakage-type failure of a pressure component in a single subsystem (except structural failure of a housing that is common to two or more subsystems) shall not impair the operation of any other subsystem.

"Stopping distance" means the distance traveled by a vehicle from the point of application of force to the brake control to the point at which the vehicle reaches a full stop.

"Variable proportioning brake system" means a system that automatically adjusts the braking force at the axles to compensate for vehicle static axle loading and/or dynamic weight transfer between axles during deceleration.

## **S5. Requirements.**

**S5.1 Service brake system.** Each vehicle shall be capable of meeting the requirements of S5.1.1 through S5.1.6, under the conditions specified in S6, when tested according to the procedures and in the sequence set forth in S7. Except as noted in S5.1.1.2 and S5.1.1.4, if a vehicle is incapable of attaining a speed specified in S5.1.1, S5.1.2, S5.1.3, or S5.1.6, its service brakes shall be capable of stopping the vehicle from the multiple of 5 mph that is 4 mph to 8 mph less than the speed attainable in 2 miles, within distances that do not exceed the corresponding distances specified in Table II. If a vehicle is incapable of attaining a speed specified in S5.1.4 in the time or distance interval set forth, it shall be tested at the highest speed attainable in the time or distance interval specified.

**S5.1.1 Stopping distance.** The service brakes shall be capable of stopping each vehicle in four effectiveness tests within the distances, and from the speeds specified below.

**S5.1.1.1** In the first (preburnished) effectiveness test, the vehicle shall be capable of stopping from 30 mph and 60 mph within the corresponding distances specified in Column I of Table II.

**S5.1.1.2** In the second effectiveness test, the vehicle shall be capable of stopping from 30 and 609 mph within the corresponding distances

specified in Column II of Table II. If the speed attainable in 2 miles is not less than 84 mph, a passenger car shall also be capable of stopping from 80 mph within the corresponding distance specified in Column II of Table II.

**S5.1.1.3** In the third effectiveness test the vehicle shall be capable of stopping at lightly loaded vehicle weight from 60 mph within the corresponding distance specified in Column III of Table II.

**S5.1.1.4** In the fourth effectiveness test, a vehicle with a GVWR of 10,000 pounds or less shall be capable of stopping from 30 and 60 mph within the corresponding distances specified in Column I of Table II. If the speed attainable in 2 miles is not less than 84 mph, a passenger car shall also be capable of stopping from 80 mph within the corresponding distance specified in Column I of Table II.

If the speed attainable in 2 miles is not less than 99 mph, a passenger car shall, in addition, be capable of stopping from the applicable speed indicated below, within the corresponding distance specified in Column I of Table II.

<i>Speed attainable in 2 miles (mph)</i>	<i>Required to stop from (mph)</i>
not less than 99 but less than 104	95
104 or more	100

## **S5.1.2 Partial failure.**

**S5.1.2.1** In vehicles manufactured with a split service brake system, in the event of a rupture or leakage type of failure in a single subsystem, other than a structural failure of a housing that is common to two or more subsystems, the remaining portion(s) of the service brake system shall continue to operate and shall be capable of stopping a vehicle from 60 mph within the corresponding distance specified in Column IV of Table II.

**S5.1.2.2** In vehicles not manufactured with a split service brake system, in the event of any one rupture or leakage type of failure in any component of the service brake system the vehicle shall, by operation of the service brake

TABLE 1—BRAKE TEST PROCEDURE SEQUENCE AND REQUIREMENTS

No.	Sequence	Test Load		Test Procedure	Requirements
		Light	GVWR		
1.	Instrumentation check .....	-	-	S7.2	-
2.	First (preburnish) effectiveness test .....	-	x	S7.3	S5.1.1.1
3.	Burnish procedure .....	-	x	S7.4	-
4.	Second effectiveness .....	-	x	S7.5	S5.1.1.2
5.	First reburnish .....	-	x	S7.6	-
6.	Parking brake .....	x	x	S7.7	S5.2
7.	Third effectiveness (lightly loaded vehicle) .....	x	-	S7.8	S5.1.1.3
8.	Partial failure .....	x	x	S7.9	S5.1.2
9.	Inoperative brake power and power assist units .....	-	x	S7.10	S5.1.3
10.	First fade and recovery .....	-	x	S7.11	S5.1.4
11.	Second reburnish .....	-	x	S7.12	-
12.	Second fade and recovery .....	-	x	S7.13	S5.1.4
13.	Third reburnish .....	-	x	S7.14	-
14.	Fourth effectiveness .....	-	x	S7.15	S5.1.1.4
15.	Water recovery .....	-	x	S7.16	S5.1.5
16.	Spike stops .....	-	x	S7.17	S5.1.6
17.	Final inspection .....	-	-	S7.18	S5.6
18.	Moving barrier test .....	-	x	S7.19	S5.2.2.3

control, be capable of stopping 10 times consecutively from 60 mph within the corresponding distance specified in Column IV of Table II.

**S5.1.3 Inoperative brake power assist unit or brake power unit.** A passenger car equipped with one or more brake power assist units shall meet the requirements of either S5.1.3.1, S5.1.3.2, or S5.1.3.4 (chosen at the option of the manufacturer), and a passenger car equipped with one or more brake power units shall meet the requirements of either S5.1.3.1, S5.1.3.3, or S5.1.3.4 (chosen at the option of the manufacturer). A vehicle other than a passenger car shall meet the requirements of S5.1.3.1.

**S5.1.3.1** The service brakes on a vehicle equipped with one or more brake power assist units or brake power units, with one such unit inoperative and depleted of all reserve capability, shall be capable of stopping a vehicle from 60 mph within the corresponding distance specified in Column IV of Table II.

**S5.1.3.2 Brake power assist units.** The service brakes on a vehicle equipped with one or more

brake power assist units, with one such unit inoperative, shall be capable of stopping a vehicle from 60 mph—

(a) In six consecutive stops at an average deceleration for each stop that is not lower than that specified in Column I of Table III, when the inoperative unit is not initially depleted of all reserve capability; and

(b) In a final stop, at an average deceleration that is not lower than 7 fpsps (equivalent stopping distance 554 feet) when the inoperative unit is depleted of all reserve capability.

**S5.1.3.3 Brake power units.** The service brakes of a vehicle equipped with one or more brake power units with an accumulator-type reserve system, with any one failure in any one unit, shall be capable of stopping the vehicle from 60 mph:

(a) In 10 consecutive stops at an average deceleration for each stop that is not lower than that specified in Column II of Table III, when the unit is not initially depleted of all reserve capability; and

TABLE II—STOPPING DISTANCES

VEHICLE TEST SPEED, MPH	STOPPING DISTANCE IN FEET FOR TESTS INDICATED											
	I			II			III			IV		
	1st (Preburnish) and 4th Effectiveness; Spike Effectiveness Check			2nd Effectiveness			3rd (Lightly Loaded Vehicle) Effectiveness			Inoperative Brake Power and Power Assist Unit; Partial failure		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
30	57*	69 <sup>1st</sup> * 65 <sup>4th</sup> *	88*	54*	65*	81*	51	65	81	114	194	218
35	74	110	132	70	110	132	67	110	132	155	264	312
40	96	144	173	91	144	173	87	144	173	202	345	388
45	121	182	218	115	182	218	110	182	218	257	436	490
50	150	225	264	142	225	264	135	225	264	317	538	605
55	181	272	326	172	272	326	163	272	326	383	651	732
60	216*	323*	388*	204*	323*	388*	194*	323*	388*	456*	775*	872*
80	405*	N.A.	N.A.	383*	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
95	607	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
100	673											

\* Distances for specified tests.

N.A. Not Applicable.

(a) Passenger cars

(b) Vehicles other than passenger cars with GVWR of 10,000 pounds or less.

(c) Vehicles other than passenger cars with GVWR greater than 10,000 pounds.

TABLE III—INOPERATIVE BRAKE POWER ASSIST AND BRAKE POWER UNITS

Stop. No	Average Deceleration, FPSPS		Equivalent Stopping Distance, Feet	
	Column 1 Brake Power Assist	Column 2 Brake Power Unit	Column 3 Brake Power Assist	Column 4 Brake Power Unit
1.	16	16	242	242
2.	12	13	323	298
3.	10	12	388	323
4.	9	11	431	352
5.	8	10	484	388
6.	7.5	9.5	517	409
7.	(Depleted) 7.0			
8.	N.A.	9.0	554	431
9.	N.A.	8.5	N.A.	456
10.	N.A.	8.0	N.A.	484
		7.5	N.A.	517
11.	N.A.	(Depleted) 7.0	N.A.	554

(b) In a final stop, at an average deceleration that is not lower than 7 fpsps (equivalent stopping distance 554 feet) when the failed element of the unit is depleted of all reserve capability.

**S5.1.3.4 Brake power assist and brake power units.** The service brake of a vehicle equipped with one or more brake power assist units or brake power units with a backup system, with one brake power assist unit or brake power unit inoperative and depleted of all reserve capability and with only the backup system operating in the failed subsystem, shall be capable of stopping the vehicle from 60 mph in 15 consecutive stops at an average deceleration for each stop that is not lower than 12 fpsps (equivalent stopping distance 323 feet).

**S5.1.4 Fade and recovery.** The service brakes shall be capable of stopping each vehicle in two fade and recovery tests as specified below.

**S5.1.4.1** The control force used for the baseline check stops or snubs shall be not less than 10 pounds, nor more than 60 pounds, except that the control force for a vehicle with a GVWR of 10,000 pounds or more may be between 10 pounds and 90 pounds.

**S5.1.4.2** (a) Each vehicle with GVWR of 10,000 pounds or less shall be capable of making five fade stops (10 fade stops on the second test) from 60 mph at a deceleration not lower than 15 ft/s/s for each stop, followed by five fade stops at the maximum deceleration attainable from 5 to 15 ft/s/s.

(b) Each vehicle with a GVWR greater than 10,000 pounds shall be capable of making 10 fade snubs (20 fade snubs on the second test) from 40 mph to 20 mph at 10 fpsps for each snub.

**S5.1.4.3(a)** Each vehicle with a GVWR of 10,000 pounds or less shall be capable of making five recovery stops from 30 mph at ten fpsps for each stop, with a control force application that falls within the following maximum and minimum limits:

(1) A maximum for the first four recovery stops of 150 pounds, and for the fifth stop, of 20 pounds more than the average control force for the baseline check; and

(2) A minimum of—

(A) The average control force for the baseline check minus 10 pounds, or

(B) The average control force for the baseline check times 0.60,

whichever result is lower (but in no case lower than 5 pounds).

(b) Each vehicle with a GVWR of more than 10,000 pounds shall be capable of making five recovery snubs from 40 mph to 20 mph at 10 fpsps of each snub, with a control force application that falls within the following maximum and minimum limits:

(1) A maximum for the first four recovery snubs of 150 pounds, and for the fifth snub, of 20 pounds more than the average control force for the baseline check (but in no case more than 100 pounds); and

(2) A minimum of—

(A) The average control force for the baseline check minus 10 pounds, or

(B) The average control force for the baseline check times 0.60, whichever is lower (but in no case lower than 5 pounds).

**S5.1.5 Water recovery.** The service brakes shall be capable of stopping each vehicle in a water recovery test, as specified below.

**S5.1.5.1** The control force used for the baseline check stops or snubs shall be not less than 10 pounds, nor more than 60 pounds, except that the control force for a vehicle with a GVWR of 10,000 pounds or more may be between 10 and 90 pounds.

**S5.1.5.2(a)** After being driven for 2 minutes at a speed of 5 mph in any combination of forward and reverse directions through a trough having a water depth of 6 inches, each vehicle with a GVWR of 10,000 pounds or less shall be

capable of making five recovery stops from 30 mph at ten fpsps for each stop with a control force application that falls within the following maximum and minimum limits:

(1) A maximum for the first four recovery stops of 150 pounds, and for the fifth stop, of 45 pounds more than the average control force for the baseline check (but in no case more than 90 pounds, except that the maximum control force for the fifth stop in the case of a vehicle manufactured before September 1, 1976, shall be not more than plus 60 pounds of the average control force for the baseline check (but in no case more than 110 pounds).)

(2) A minimum of—

(A) The average control force for the baseline check minus 10 pounds, or

(B) The average control force for the baseline check times 0.60,

whichever result is lower (but in no case lower than 5 pounds).

However, the maximum control force for the fifth stop in the case of a vehicle manufactured before September 1, 1976, shall be not more than plus 60 pounds of the average control force for the baseline check (but in no case more than 110 pounds).

(b) After being driven for 2 minutes at a speed of 5 mph in any combination of forward and reverse directions through a trough having a water depth of 6 inches, each vehicle with a GVWR of more than 10,000 pounds shall be capable of making five recovery stops from 30 mph at 10 fpsps for each stop with a control force application that falls within the following maximum and minimum limits:

(1) A maximum for the first four recovery stops of 150 pounds, and for the fifth stop, of 60 pounds more than the average control force for the baseline check (but in no case more than 110 pounds); and

(2) A minimum of—

(A) The average control force for the baseline check minus 10 pounds, or

(B) The average control force for the baseline check times 0.60, whichever is lower (but in no case lower than 5 pounds).

**S5.1.6 Spike stops.** Each passenger car shall be capable of making 10 spike stops from 30 mph followed by 6 effectiveness (check) stops from 60 mph, at least one of which shall be within a corresponding stopping distance specified in Column I of Table II.

**S5.2 Parking brake system.** Each vehicle shall be manufactured with a parking brake system of a friction type with a solely mechanical means to retain engagement, which shall under the conditions of S6, when tested according to the procedures specified in S7, meet the requirements specified in S5.2.1, S5.2.2, or S5.2.3 as appropriate, with the system engaged—

(a) In the case of a passenger car, with a force applied to the control not to exceed 125 pounds for a foot-operated system and 90 pounds for a hand-operated system; and

(b) In the case of a school bus, with a force applied to the control not to exceed 150 pounds for a foot-operated system and 125 pounds for a hand-operated system.

**S5.2.1** Except as provided in S5.2.2, the parking brake system on a vehicle with a GVWR of 10,000 pounds or less shall be capable of holding the vehicle stationary (to the limit of traction on the braked wheels) for 5 minutes in both a forward and reverse direction on a 30 percent grade.

**S5.2.2** A vehicle of a type described in S5.2.1 at the option of the manufacturer may meet the requirements of S5.2.2.1, S5.2.2.2, and S5.2.2.3 instead of the requirements of S5.2.1 if:

(a) The vehicle has a transmission or transmission control which incorporates a parking mechanism, and

(b) The parking mechanism must be engaged before the ignition key can be removed.

**S5.2.2.1** The vehicle's parking brake and parking mechanism, when both are engaged, shall be



capable of holding the vehicle stationary (to the limit of traction of the braked wheels) for 5 minutes, in both forward and reverse directions, on a 30 percent grade.

**S5.2.2.2** The vehicle's parking brake, with the parking mechanism not engaged, shall be capable of holding the vehicle stationary for 5 minutes, in both forward and reverse directions, on a 20 percent grade.

**S5.2.2.3** With the parking mechanism engaged and the parking brake not engaged, the parking mechanism shall not disengage or fracture in a manner permitting vehicle movement, when the vehicle is impacted at each end, on a level surface, by a barrier moving at 2½ mph.

**S5.2.3** The parking brake system on a vehicle with a GVWR greater than 10,000 pounds shall be capable of holding the vehicle stationary for 5 minutes, in both forward and reverse directions, on a 20 percent grade.

**S5.3 Brake system indicator lamp.** Each vehicle shall have one or more brake system indicator lamps, mounted in front of and in clear view of the driver, which meet the requirements of S5.3.1 through S5.3.5. However, the options provided in S5.3.1(a) shall not apply to a vehicle manufactured without a split service brake system; such a vehicle shall, to meet the requirements of S5.3.1(a), be equipped with a warning indicator that activates under the conditions specified in S5.3.1(a)(4). This warning indicator shall, instead of meeting the requirements of S5.3.2 through S5.3.5, activate (while the vehicle remains capable of meeting the requirements of S5.1.2.2 and the ignition switch is in the "on" position) a continuous or intermittent audible signal and a flashing warning light, displaying the words "STOP—BRAKE FAILURE" in block capital letters not less than one-quarter of an inch in height.

**S5.3.1** An indicator lamp shall be activated when the ignition (start) switch is in the "on" ("run") position and whenever any of conditions (a), (c), or (d) occur, or, at the option of the manufacturer, whenever any of conditions (b), (c), or (d) occur:

(a) A gross loss of pressure (such as caused by rupture of a brake line but not by a structural failure of a housing that is common to two or more subsystems) due to one of the following conditions (chosen at the option of the manufacturer):

(1) Before or upon application of a differential pressure of not more than 225 lb/in<sup>2</sup> between the active and failed brake system measured at a master cylinder outlet or a slave cylinder outlet.

(2) Before or upon application of 50 pounds of control force upon a fully manual service brake.

(3) Before or upon application of 25 pounds of control force upon a service brake with a brake power assist unit.

(4) When the supply pressure in a brake power unit drops to a level not less than one-half of the normal system pressure.

(b) A drop in the level of brake fluid in any master cylinder reservoir compartment to less than the recommended safe level specified by the manufacturer or to one-fourth of the fluid capacity of the reservoir compartment, whichever is greater.

(c) A total functional electrical failure in an antilock or variable proportioning brake system.

(d) Application of the parking brake.

**S5.3.2** All indicator lamps shall be activated as a check of lamp function either when the ignition (start) switch is turned to the "on" ("run") position when the engine is not running, or when the ignition (start) switch is in a position between "on" ("run") and "start" that is designated by the manufacturer as a check position. However, in vehicles equipped with an automatic transmission, the activation as a check of lamp function is not required when the transmission shift level is in a forward or reverse drive position.

**S5.3.3** Each indicator lamp activated due to a condition specified in S5.3.1 shall remain activated as long as the condition exists, whenever the ignition (start) switch is in the "on" ("run") position, whether or not the engine is running.

**S5.3.4** When an indicator lamp is activated it may be steady burning or flashing.

**S5.3.5** Each indicator lamp shall have a lens labeled in letters not less than one-eighth inch high, which shall be legible to the driver in daylight when lighted. The lens and the letters shall have contrasting colors, one of which is red. If a single common indicator is used, the lens shall be labeled "Brake." If separate indicator lamps are used for one or more of the various functions described in S5.3.1(a) to S5.3.1(d), the lens shall include the word "Brake" and appropriate additional labeling (use "Brake Pressure," "Brake Fluid" for S5.3.1(a) and S5.3.1(b)) except that if a separate parking indicator lamp is provided, the single word "Park" may be used. An antilock system may have a separate lens labeled "Antilock," in letters not less than one-eighth of an inch high, which shall be legible to the driver in daylight when lighted, if the indicator is used only for the antilock system. The lens and the letters shall have contrasting colors, one of which is yellow.

#### **S5.4 Reservoirs.**

**S5.4.1 Master cylinder reservoirs.** A master cylinder shall have a reservoir compartment for each service brake subsystem serviced by the master cylinder. Loss of fluid from one compartment shall not result in a complete loss of brake fluid from another compartment.

**S5.4.2 Reservoir capacity.** Reservoirs, whether for master cylinders or other type systems, shall have a total minimum capacity equivalent to the fluid displacement resulting when all the wheel cylinders or caliper pistons serviced by the reservoirs move from a new lining, fully retracted position (as adjusted initially to the manufacturer's recommended setting) to a fully worn, fully applied position, as determined in accordance with S7.18(c) of this standard. Reservoirs shall have completely separate compartments for each subsystem except that in reservoir systems utilizing a portion of the reservoir for a common supply to two or more subsystems, individual

partial compartments shall each have a minimum volume of fluid equal to at least the volume displaced by the master cylinder piston servicing the subsystem, during a full stroke of the piston. Each brake power unit reservoir servicing only the brake system shall have a minimum capacity equivalent to the fluid displacement required to charge the system piston(s) or accumulator(s) to normal operating pressure plus the displacement resulting when all the wheel cylinders or caliper pistons serviced by the reservoir or accumulator(s) move from a new lining fully retracted position (as adjusted initially to the manufacturer's recommended setting) to a fully worn, fully applied position.

**S5.4.3 Reservoir labeling.** Each vehicle shall have a brake fluid warning statement that reads as follows, in letters at least  $\frac{1}{8}$  of an inch high: "WARNING, Clean filler cap before removing.

Use only \_\_\_\_\_ fluid from a sealed container." (Inserting the recommended type of brake fluid as specified in 49 CFR § 571.116, e.g. "DOT 3".) The lettering shall be—

(a) Permanently affixed, engraved, or embossed;

(b) Located so as to be visible by direct view, either on or within 4 inches of the brake fluid reservoir filler plug or cap; and

(c) Of a color that contrasts with its background, if it is not engraved or embossed.

**S5.5 Antilock and variable proportioning brake systems.** In the event of failure (structural or functional) in an antilock or variable proportioning brake system the vehicle shall be capable of meeting the stopping distance requirements specified in S5.1.2 for service brake system partial failure.

**S5.6 Brake system integrity.** Each vehicle shall be capable of completing all performance requirements of S5 without—

(a) Detachment or fracture of any component of the braking system, such as brake springs and brake shoe or disc pad facing, other than minor cracks that do not impair attachment of the friction facing. All mechanical components of

the braking system shall be intact and functional. Friction facing tearout (complete detachment of lining) shall not exceed 10 per cent of the lining on any single frictional element.

(b) Any visible brake fluid or lubricant on the friction surface of the brake, or leakage at the master cylinder or brake power unit reservoir cover, seal and filler openings.

**S6. Test conditions.** The performance requirements of S5 shall be met under the following conditions. Where a range of conditions is specified, the vehicle shall be capable of meeting the requirements at all points within the range.

#### **S6.1 Vehicle weight.**

**S6.1.1** Other than tests specified at lightly loaded vehicle weight in S7.7, S7.8, and S7.9, the vehicle is loaded to its GVWR such that the weight on each axle as measured at the tire-ground interface is in proportion to its GAWR, except that the fuel tank is filled to any level from 100 per cent of capacity (corresponding to full GVWR loading) to 75 per cent of capacity.

However, if the weight on any axle of a vehicle at lightly loaded vehicle weight exceeds the axle's proportional share of the gross vehicle weight rating, the load required to reach GVWR is placed so that the weight on that axle remains the same as at lightly loaded vehicle weight.

**S6.1.2** For the applicable tests specified in S7.7, S7.8, and S7.9, vehicle weight is lightly loaded vehicle weight, with the added weight distributed in the front passenger seat area in passenger cars and in the area adjacent to the driver's seat in buses.

**S6.2 Test loads.** Reserved.

**S6.3 Tire inflation pressure.** Tire inflation pressure is the pressure recommended by the vehicle manufacturer for the GVWR of the vehicle.

**S6.4 Transmission selector control.** For S7.3, S7.5, S7.8, S7.15, S7.17, S7.11.1.2, S7.11.2.2, S7.11.3.2, and as required for S7.13, the transmission selector control is in neutral for all decelerations. For all other tests during all decelerations, the transmission selector is in the control position, other than overdrive, recommended by the manufacturer for driving on a level surface at the applicable test speed. To avoid engine stall during tests required to be run in gear a manual transmission may be shifted to neutral (or the clutch disengaged) when the vehicle speed decreases to 20 m.p.h.

**S6.5 Engine.** Engine idle speed and ignition timing settings are according to the manufacturer's recommendations. If the vehicle is equipped with an adjustable engine speed governor, it is adjusted according to the manufacturer's recommendation.

**S6.6 Vehicle openings.** All vehicle openings (doors, windows, hood, trunk, convertible top, cargo doors, etc.) are closed except as required for instrumentation purposes.

**S6.7 Ambient temperature.** The ambient temperature is any temperature between 32° F. and 100° F.

**S6.8 Wind velocity.** The wind velocity is zero.

**S6.9 Road surface.** Road tests are conducted on a 12-foot-wide, level roadway having a skid number of 81. Burnish stops are conducted on any surface. The parking brake test surface is clean, dry smooth Portland cement concrete.

**S6.10 Vehicle position.** The vehicle is aligned in the center of the roadway at the start of each brake application. Stops, other than spike stops, are made without any part of the vehicle leaving the roadway. Except as noted below, stops are made without lockup of any wheel at speeds greater than 10 mph. There may be controlled lockup on an antilock-equipped axle, and lockup of not more than one wheel per vehicle, uncontrolled by an antilock system. Locked wheels at speeds greater than 10 mph are allowed during spike stops (but not spike check stops), partial failure stops, and inoperative brake power or power assist unit stops.

**S6.11 Thermocouples.** The brake temperature is measured by plug-type thermocouples installed in the approximate center of the facing length and width of the most heavily loaded shoe or disc pad, one per brake, as shown in Figure 1. A second thermocouple may be installed at the beginning of the test sequence if the lining wear is expected to reach a point causing the first thermocouple to contact the metal rubbing surface of a drum or rotor. For center-grooved shoes or pads, thermocouples are installed within one-eighth of an inch to one-quarter inch of the groove and as close to the center as possible.

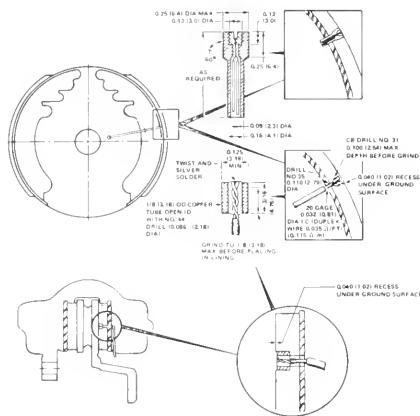


FIGURE 1—TYPICAL PLUG THERMOCOUPLE INSTALLATIONS

Note: The second thermocouple shall be installed at .080 inch depth within 1 inch circumference of the thermocouple installed at .040 inch depth.

**S6.12 Initial brake temperature.** Unless otherwise specified the brake temperature is 150° F. to 200° F.

**S6.13 Control forces.** Unless otherwise specified, the force applied to a brake control is not less than 15 pounds and not more than 150 pounds.

**S7. Test procedures and sequence.** Each vehicle shall be capable of meeting all the requirements of S5 when testing according to the procedures and in the sequence set forth below, without replacing any brake system part or making any adjustments to the brake system

other than as permitted in burnish and reburnish procedures and in S7.9 and S7.10. Automatic adjusters may be locked out, according to the manufacturer's recommendation, when the vehicle is prepared for testing. If this option is selected, adjusters must remain locked out for entire sequence of tests. A vehicle shall be deemed to comply with the stopping distance requirements of S5.1 if at least one of the stops at each speed and load specified in each of S7.3, S7.5, S7.8, S7.9, S7.10, S7.15, or S7.17 (check stops) is made within a stopping distance that does not exceed the corresponding distance specified in Table II.

When the transmission selector control is required to be in neutral for a deceleration, a stop or snub shall be obtained by the following procedures: (1) Exceed the test speed by four to eight mph; (2) close the throttle and coast in gear to approximately two mph above the test speed; (3) shift to neutral; and (4) when the test speed is reached, apply the service brakes.

**S7.1 Brake warming.** If the initial brake temperature for the first stop in a test procedure (other than S7.7 and S7.16) has not been reached, heat the brakes to the initial brake temperature by making not more than 10 snubs from not more than 40 mph to 10 mph, at a deceleration not greater than 10 fpsps.

**S7.2 Pretest instrumentation check.** Conduct a general check of instrumentation by making not more than 10 stops from a speed of not more than 30 mph, or 10 snubs from a speed of not more than 40 mph to 10 mph, at a deceleration of not more than 10 fpsps. If instrument repair, replacement, or adjustment is necessary, make not more than 10 additional stops or snubs after such repair, replacement or adjustment.

**S7.3 Service brake system—first (peburnish) effectiveness test.** Make six stops from 30 mph. Then make six stops from 60 mph.

**S7.4 Service brake system—burnish procedure.**

**S7.4.1 Vehicles with GVWR of 10,000 pounds or less.**

**S7.4.1.1 Burnish.** Burnish the brakes by making 200 stops from 40 mph at 12 fpsps (the 150

pound control force limit does not apply here). The interval from the start of one service brake application to the start of the next shall be either the time necessary to reduce the initial brake temperature to between 230° F. and 270° F., or the distance of 1 mile, whichever occurs first. Accelerate to 40 mph after each stop and maintain that speed until making the next stop.

#### S7.4.1.2 Brake adjustment—post burnish.

After burnishing, adjust the brakes manually in accordance with the manufacturer's recommendation if the brake systems are manual or if the automatic adjusters are locked out, or by making stops as recommended by the manufacturer if the automatic adjusters are operative.

#### S7.4.2 Vehicles with GVWR greater than 10,000 pounds.

**S7.4.2.1 Burnish.** Burnish the brakes by making 500 snubs at 10 fps in the sequence specified in Table IV and within the speed ranges indicated. After each brake application accelerate to the next speed specified and maintain that speed until making the next brake application at a point 1 mile from the initial point of the previous brake application. If a vehicle cannot attain any speed specified in 1 mile, continue to accelerate until the speed specified is reached or until a point 1.5 miles from the initial point of the previous brake application is reached, whichever occurs first. If during any of the brake applications specified in Table IV the hottest brake reaches 500° F. make the remainder of the 500 applications from that snub condition, except that a higher or lower snub condition shall be followed (up to the 60 mph initial speed) as necessary to maintain a temperature of 500° F.  $\pm$  50° F.

Table IV

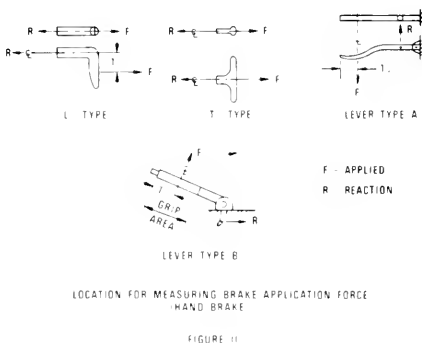
Series	Snubs	Snub conditions (highest speed indicated)
1	175	40 to 20 mph
2	25	45 to 20 mph
3	25	50 to 20 mph
4	25	55 to 20 mph
5	250	60 to 20 mph

**S7.4.2.2 Brake adjustment—post burnish.** After burnishing, adjust the brakes manually in accordance with the manufacturer's recommendation if the brake systems are manual or if the automatic adjusters are locked out, or by making stops as recommended by the manufacturer if the automatic adjusters are operative.

**S7.5 Service brake system—second effectiveness test.** Repeat S7.3. Then (for passenger cars) make four stops from 80 mph if the speed attainable in 2 miles is not less than 84 mph.

**S7.6 First reburnish.** Repeat S7.4, except make 35 burnish stops or snubs. Reburnish a vehicle whose brakes are burnished according to S7.4.2.1 by making 35 snubs from 60 mph to 20 mph, but if the hottest brake reaches 500° F.  $\pm$  50° F. make the remainder of the 35 applications from such initial speed divisible by five but less than 60 mph as necessary to maintain a temperature of 500° F.  $\pm$  50° F.

**S7.7 Parking brake test.** The parking brake tests for any vehicle on different grades, in different directions, and for different loads may be conducted in any order. The force required for actuation of a hand-operated brake system shall be measured at the center of the hand grip area or at a distance of 1½ inches from the end of the actuation lever, as illustrated in Figure II.



#### **S7.7. Test procedure for requirements of S5.2.1.**

**S7.7.1.1.** Condition the parking brake friction elements so that the temperature at the beginning of the test is at any level not more than 150° F. (when the temperature of components on both ends of an axle are averaged).

**S7.7.1.2** Drive the vehicle, loaded to GVWR, onto the specified grade with the longitudinal axis of the vehicle in the direction of the slope of the grade, stop the vehicle and hold it stationary by application of the service brake control, and place the transmission in neutral.

**S7.7.1.3** With the vehicle held stationary by means of the service brake control, apply the parking brake by a single application of the force specified in (a) or (b), except that a series of applications to achieve the specified force may be made in the case of a parking brake system design that does not allow the application of the specified force in a single application:

(a) In the case of a passenger car, not more than 125 pounds for a foot-operated system, and not more than 90 pounds for a hand-operated system; and

(b) In the case of a school bus, not more than 150 pounds for a foot-operated system, and not more than 125 pounds for a hand-operated system.

**S7.7.1.4** Following the application of the parking brake in accordance with S7.7.1.3, release all force on the service brake control and commence the measurement of time if the vehicle remains stationary. If the vehicle does not remain stationary, reapplication of the service brake to hold the vehicle stationary, with reapplication of a force to the parking brake control at the level specified in S7.6.1.3(a) or (b) as appropriate for the vehicle being tested (without release of the ratcheting or other holding mechanism of the parking brake) may be used twice to attain a stationary position.

**S7.7.1.5** Following observation of the vehicle in a stationary condition for the specified time in one direction, repeat the same test procedure with the vehicle orientation in the opposite direction on the specified grade.

**S7.7.1.6** Check the operation of the parking brake application indicator required by S5.3.1(d).

#### **S7.7.2 Test procedures for requirements of S5.2.2.**

(a) Check that transmission must be placed in park position to release key;

(b) Test as in S7.7.1, except in addition place the transmission control to engage the parking mechanism; and

(c) Test as in S7.7.1 except on a 20 per cent grade, with the parking mechanism not engaged.

**S7.7.3 Lightly loaded vehicle.** Repeat S7.7.1 or S7.7.2 as applicable except with the vehicle at lightly loaded vehicle weight.

**S7.7.4 Non-service brake type parking brake systems.** For vehicles with parking brake systems not utilizing the service brake friction elements, burnish the friction elements of such systems prior to parking brake tests according to the manufacturer's published recommendations as furnished to the purchaser. If no recommendations are furnished, run the vehicle in an unburnished condition.

**S7.8 Service brake system—lightly loaded vehicle (third effectiveness) test.** Make six stops from 60 mph with vehicle at lightly loaded vehicle weight.

#### **S7.9 Service brake system test—partial failure.**

**S7.9.1** With the vehicle at lightly loaded vehicle weight, alter the service brake system to produce any one rupture or leakage type of failure, other than a structural failure of a housing that is common to two or more subsystems. Determine the control force, pressure level, or fluid level (as appropriate for the indicator being tested) necessary to activate the brake system indicator lamp. Make four stops if the vehicle is equipped with a split service brake system, or 10 stops if the vehicle is not so equipped, each from 60 mph, by a continuous application of the service brake control. Restore the service brake system to normal at completion of this test.

**S7.9.2** Repeat S7.9.1 for each of the other subsystems.

**S7.9.3** Repeat S7.9.1 and S7.9.2 with vehicle at GVWR. Restore the service brake system to normal at completion of this test.

**S7.9.4** (For vehicles with antilock and/or variable proportioning brake systems). With vehicle at GVWR, disconnect functional power source, or otherwise render antilock system inoperative. Disconnect variable proportioning brake system. Make four stops, each from 60 mph. If more than one antilock or variable proportioning brake subsystem is provided, disconnect or render one subsystem inoperative and run as above. Restore system to normal at completion of this test. Repeat for each subsystem provided. Determine whether the brake system indicator lamp is activated when the electrical power source to the antilock or variable proportioning unit is disconnected.

**S7.10 Service brake system—inoperative brake power unit or brake power assist unit test.** (For vehicles equipped with brake power unit or brake power assist unit).

**S7.10.1 Regular procedure.** (This test need not be run if the option in S7.10.2 is selected.) On vehicles with brake power assist units, render the brake power assist unit inoperative, or one of the brake power assist unit subsystems if two or more subsystems are provided by disconnecting the relevant power supply. Exhaust any residual brake power reserve capability of the disconnected system. On vehicles with brake power units, disconnect the primary source of power. Make four stops, each from 60 mph, by a continuous application of the service brake control. Restore the system to normal at completion of this test. For vehicles equipped with more than one brake power unit or brake power assist unit, conduct tests for each in turn.

**S7.10.2 Optional procedures—passenger cars only.** On vehicles with brake power assist units, the unit is charged to maximum prior to start of

test. (Engine may be run up in speed, then throttle closed quickly to attain maximum charge on vacuum assist units). Brake power units shall also be charged to maximum accumulator pressure prior to start of test. No recharging is allowed after start of test.

(a) (For vehicles with brake power assist units.)

Disconnect the primary source of power. Make six stops each from 60 mph, to achieve the average deceleration for each stop as specified in Table III. Apply the brake control as quickly as possible. Maintain control force until vehicle has stopped.

At the completion of the stops specified above, deplete the system of any residual brake power reserve capability. Make one stop from 60 mph at an average deceleration of not lower than 7 fpsps for passenger cars (equivalent stopping distance 554 feet), or 6 fpsps for vehicles other than passenger cars (equivalent stopping distance 646 feet) and determine whether the control force exceeds 150 pounds.

(b) (For vehicles with brake power units with accumulator type systems) Test as in S7.10.2(a), except make 10 stops instead of 6 and, at the completion of the 10 stops, deplete the failed element of the brake power unit of any residual brake power reserve capability before making the final stop.

(c) (For vehicles with brake power assist or brake power units with backup systems.) If the brake power or brake power assist unit operates in conjunction with a backup system and the backup system is activated automatically in the event of a primary power failure, the backup system is operative during this test. Disconnect the primary source of power of one subsystem. Make 15 stops, each from 60 mph, with the backup system activated for the failed subsystem, to achieve an average deceleration of 12 fpsps for each stop.

(d) Restore systems to normal at completion of these tests. For vehicles equipped with more than one brake power assist or brake power unit, conduct tests of each in turn.

**S7.11 Service brake system—first fade and recovery test.**

**S7.11.1 Baseline check stops or snubs.**

**S7.11.1.1 Vehicles with GVWR of 10,000 pounds or less.** Make three stops from 30 mph at 10 fpsps for each stop. Control force readings may be terminated when vehicle speed falls to 5 mph. Average the maximum brake control force required for the three stops.

**S7.11.1.2 Vehicles with GVWR greater than 10,000 pounds.** With transmission in neutral (or declutched), make three snubs from 40 to 20 mph at 10 fpsps for each snub. Average the maximum brake control force required for the three snubs.

**S7.11.2 Fade stops or snubs.**

**S7.11.2.1 Vehicles with GVWR of 10,000 pounds or less.** Make 5 stops from 60 mph at 15 fpsps followed by 5 stops at the maximum attainable deceleration between 5 and 15 fpsps for each stop. Establish an initial brake temperature before the first brake application of 130° to 150° F. Initial brake temperatures before brake applications for subsequent stops are those occurring at the distance intervals. Attain the required deceleration within 1 second and, as a minimum, maintain it for the remainder of the stopping time. Control force readings may be terminated when vehicle speed falls to 5 mph. Leave an interval of 0.4 mile between the start of brake applications. Accelerate immediately to the initial test speed after each stop. Drive 1 mile at 30 mph after the last fade stop, and immediately follow the recovery procedure specified in S7.11.3.1

**S7.11.2.2 Vehicles with GVWR greater than 10,000 pounds.** With transmission in neutral (or declutched) make 10 snubs from 40 to 20 mph at 10 fpsps for each snub. Establish an initial brake temperature before the first brake application of 130° F. to 150° F. Initial brake temperatures before brake application for subsequent snubs are those occurring in the time intervals specified below. Attain the required deceleration within 1 second and maintain it for the remainder of the snubbing time. Leave an

interval of 30 seconds between snubs (start of brake application to start of brake application). Accelerate immediately to the initial test speed after each snub. Drive for 1.5 miles at 40 mph after the last snub and immediately follow the recovery procedure specified in S7.11.3.2.

**S7.11.3 Recovery stops or snubs.**

**S7.11.3.1 Vehicles with GVWR of 10,000 pounds or less.** Make five stops from 30 mph at 10 fpsps for each stop. Control force readings may be terminated when vehicle speed falls to 5 mph. Allow a braking distance interval of 1 mile. Immediately after each stop accelerate at maximum rate to 30 mph and maintain that speed until making the next stop. Record the maximum control force for each stop.

**S7.11.3.2 Vehicles with GVWR greater than 10,000 pounds.** With transmission in neutral (or declutched), make five snubs from 40 to 20 mph at 10 fpsps, for each snub. After each snub, accelerate at maximum rate to 40 mph and maintain that speed until making the next brake application at a point 1.5 miles from the point of the previous brake application. Record the maximum control force for each snub.

**S7.12 Service brake system—second reburnish.** Repeat S7.6.

**S7.13 Service brake system—second fade and recovery test.** Repeat S7.11 except in S7.11.2 run 15 fade stops or 20 snubs instead of 10.

**S7.14 Third reburnish.** Repeat S7.6.

**S7.15 Service brake system—fourth effectiveness test.** Repeat S7.5. Then (for passenger cars) make four stops from either 95 mph if the speed attainable in 2 miles is 99 to (but not including) 104 mph, or 100 mph if the speed attainable in 2 miles is 104 mph or greater.

**S7.16 Service brake system—water recovery test.**

**S7.16.1 Baseline check stop.** Make three stops from 30 mph at 10 fpsps for each stop. Control force readings may be terminated when vehicle speed falls to 5 mph. Average the maximum brake control force required for the three stops.



**S7.16.2 Wet brake recovery stops.** With the brakes fully released at all times, drive the vehicle for 2 minutes at a speed of 5 mph, in any combination of forward and reverse directions, through a trough having a water depth of 6 inches. After leaving the trough, immediately accelerate at maximum rate to 30 mph without a brake application. Immediately upon reaching that speed make five stops, each from 30 mph at 10 fpsps for each stop. After each stop (except the last), accelerate the vehicle immediately at a maximum rate to a speed of 30 mph and begin the next stop.

**S7.17 Spike stops.** Make 10 successive spike stops from 30 mph with the transmission in neutral, with no reverse stops. Make spike stops by applying a control force of 200 pounds while recording control force versus time. Maintain control force until vehicle has stopped. At completion of 10 spike stops, make six effectiveness stops from 60 mph.

**S7.18 Final inspection.** Inspect—

(a) The service brake system for detachment or fracture of any components, such as brake springs and brake shoes or disc pad facing.

(b) The friction surface of the brake, the master cylinder or brake power unit reservoir cover and seal and filler openings, for leakage of brake fluid or lubricant.

(c) The master cylinder or brake power unit reservoir for compliance with the volume and labeling requirements of S5.4.2 and S5.4.3. In determining the fully applied worn condition assume that the lining is worn to (1) rivet or bolt heads on riveted or bolted linings or (2) within  $\frac{1}{2}$  inch of shoe or pad mounting surface or bonded linings, or (3) the limit recommended by the manufacturer, whichever is larger relative to the total possible shoe or pad movement. Drums or rotors are assumed to be at nominal design drum diameter or rotor thickness. Linings are assumed adjusted for normal operating clearance in the released position.

(d) The brake system indicator light(s), for compliance with operation in various key positions, lens color, labeling and location, in accordance with S5.3.

**S7.19 Moving barrier test.** (Only for vehicles that have been tested according to S7.7.2). Load the vehicle to GVWR, release parking brake and place the transmission selector control to engage the parking mechanism. With a moving barrier as described in paragraph 3.3 of SAE Recommended Practice J972 "Moving Barrier Collision Tests," November 1966, impact the vehicle from the front at  $2\frac{1}{2}$  mph. Keep the longitudinal axis of the barrier parallel with the longitudinal axis of the vehicle. Repeat the test, impacting the vehicle from the rear. Note: The vehicle used for this test need not be the same vehicle that has been used for the braking tests.



# **PREAMBLE TO FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 105-83**

## **Hydraulic Brake Systems (Docket No. 70-27; Notice 20)**

**ACTION:** Final rule.

**SUMMARY:** This notice amends Standard 105, Hydraulic Brake Systems. The standard currently applies to passenger cars and school buses. Its applicability is extended on a general basis (with some modifications) to trucks, all types of buses, and multipurpose passenger vehicles (MPV's) with a gross vehicle weight rating (GVWR) of 10,000 lbs. or less. Several requirements are also extended to trucks, buses and MPV's with a GVWR greater than 10,000 lbs. In addition, the standard's requirements for school buses are upgraded.

**DATES:** The effective date of this amendment is September 1, 1983.

**ADDRESSES:** Petitions for reconsideration should refer to the docket number and be submitted to: Docket Section, Room 5108, 400 Seventh Street, S.W., Washington, D.C. 20590.

**FOR FURTHER INFORMATION CONTACT:**

Mr. George L. Parker, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street S.W., Washington D.C. 20590  
(202-426-2720)

**SUPPLEMENTARY INFORMATION:** Standard 105, Hydraulic Brake Systems, currently applies to passenger cars and school buses. This notice extends its applicability on a general basis (with some modifications) to trucks, all types of buses, and multipurpose passenger vehicles (MPV's) with a gross vehicle weight rating (GVWR) of 10,000 lbs. or less. Several requirements are also extended to trucks, buses and MPV's with a GVWR greater than 10,000 lbs. In addition, the

standard's requirements for school buses are upgraded.

This final rule was preceded by a notice proposing the extension of Standard 105 in October 1979 (44 FR 60113). Private citizens, safety organizations, manufacturers, and manufacturer trade associations have submitted comments on the proposal. The NHTSA has considered all of those comments and the most significant ones are discussed below.

The agency made two significant modifications in the proposed standard's requirements as a result of the comments. As will be explained below, the agency determined that third effectiveness requirements should not be applicable to vehicles, other than school buses, with a GVWR of 8,000 to 10,000 lbs. Also, the agency determined that fourth effectiveness stopping distance requirements for vehicles with a GVWR of 8,000 to 10,000 lbs., as well as spike stop check stopping distance requirements for those vehicles, should be slightly relaxed.

The changes in the standard's requirements were made to give manufacturers additional leeway in balancing the performance of their vehicles' braking systems for both fully loaded and lightly loaded conditions and to ensure that the requirements would not result in unduly burdensome certification responsibilities being imposed on final stage manufacturers.

A slight change was also made in the standard's definition of "lightly loaded vehicle weight" to permit the use of additional instrumentation.

Also in response to the comments, the agency determined that a longer period of leadtime should be provided. The effective date of the requirements is September 1, 1983, which gives a leadtime of more than two years.

Many comments were received in support of

extending Standard 105 to to apply to trucks, all types of buses, and MPV's. General Motors, Chrysler and American Motors/Jeep all stated that they support the adoption of requirements for hydraulic braked trucks, buses and MPV's, though all three companies requested some modifications in the standard as proposed. Wagner Electric stated that it is commendable that efforts are being made to improve the safety of the highways and that it can see the benefits that may accrue when more varieties of highway vehicles have been brought under the control of the appropriate minimum braking standard.

Both Ford and the Japan Automobile Manufacturers Association stated that they are not opposed to the application of braking performance requirements to vehicles in addition to passenger cars and school buses. The Japan Automobile Manufacturers Association added that, from the viewpoint of safety, it thought this application should be promoted.

The National Transportation Safety Board stated that it supported the action, noting that by reducing the current disparity between the braking capability of passenger cars and many trucks and vans, motor vehicle accidents should be reduced. The Board also stated its support for the requirements upgrading the performance requirements for school buses.

While the General Accounting Office of the United States did not specifically comment on this rulemaking, a report to the United States Congress by the Comptroller General issued in 1978 called for, among other things, expeditious rulemaking on light truck braking performance. See Report to Congress by the Comptroller General of the United States, Unwarranted Delays by the Department of Transportation to Improve Light Truck Safety, July 6, 1978.

The Center for Auto Safety stated that extension of the standard is long overdue and is fully supported by the large number of consumer complaints that the Center received each year on inadequate brakes on light trucks, vans and MPV's.

#### **Effectiveness Requirements**

Comments received on the proposal's effectiveness requirements for service brake systems primarily dealt with the third and fourth effectiveness test stopping distances for vehicles with a GVWR of 8,000 to 10,000 lbs. Several comments

stated that the stopping distance requirements that were proposed were too stringent.

The fourth effectiveness test is an effectiveness test of the braking system which is conducted after the fade tests and while the vehicle is fully loaded. Because it comes after the fade tests, during which some deterioration of the brakes may occur, the fourth effectiveness test was considered by several commenters to be the most stringent of the fully loaded effectiveness tests. Generally discussed along with the fourth effectiveness test were the spike stop check stopping distance requirements. These requirements represent an abbreviated effectiveness test with the same stopping distance requirements as the fourth effectiveness test, which is conducted after the spike stops (which follow the fourth effectiveness test). Because the commenters addressed these tests together and because the stopping distance requirements are the same for the two tests, the discussion of these requirements will subsume the spike stop check stopping distance requirements into consideration of the fourth effectiveness stopping distance requirements.

According to the commenters, brakes which are powerful enough to meet the fourth effectiveness (fully loaded) stopping distance requirements for vehicles in that weight class would be prone to lockup in the lightly loaded condition. If lockup occurred in the lightly loaded condition, the vehicles would be unable to meet the third effectiveness (lightly loaded) stopping distance requirements. Several comments stated that manufacturers would find it necessary to develop anti-lock or similar devices in order to meet the requirements as proposed.

Other comments on the third and fourth effectiveness requirements for this class of vehicles focused on possible deleterious effects that the requirements might have on final stage manufacturers and the market which they serve. (A "final stage manufacturer" is a manufacturer which typically purchases an incomplete vehicle which usually consists only of a chassis, suspension, power train, brakes and perhaps an occupant compartment from an incomplete vehicle manufacturer such as Ford, General Motors or Chrysler and completes the vehicle by adding a body or work-performing equipment).

Any final stage manufacturer that does not

complete a vehicle in accordance with conditions established by the incomplete vehicle manufacturer must recertify that the completed vehicle complies with applicable safety standards based upon its own information, analysis, or tests. Several commenters were concerned that final stage manufacturers would not be able to meet those conditions and thus would be required to engage in extensive testing of their vehicles. According to those commenters, extensive testing is not feasible for final stage manufacturers as they are often small manufacturers that produce only limited numbers of a variety of specialty vehicles.

Changes suggested by the commenters varied, depending upon whether they were addressing the requirements from the point of view of the large manufacturers (i.e., the incomplete vehicle manufacturers) or the final stage manufacturers. General Motors, for example, stated that it could meet the longest of a range of stopping distances proposed for the third effectiveness test if fourth effectiveness test stopping distances were extended by 10 percent. Comments received from Ford and Chrysler were similar, with Ford asking for a relatively minor increase in third effectiveness stopping distances and a 10 percent increase in fourth effectiveness stopping distances, while Chrysler requested a 16 percent increase in stopping distances for fourth effectiveness tests.

Those commenters primarily concerned with final stage manufacturer certification difficulties suggested various approaches, including not extending Standard 105 at this time or only extending it to vehicles with a GVWR under 8,000 lbs. Other approaches suggested by those commenters include applying different test requirements to final stage manufacturers, so long as the braking systems on their vehicles are used on similar vehicles, requiring incomplete vehicle manufacturers to give additional information to final stage manufacturers to help them make engineering judgments about the effect changes in the center of gravity will have on a vehicle's braking ability, and providing a longer period of leadtime to final stage manufacturers than other manufacturers.

The latter approach was suggested because some final stage manufacturers were concerned that incomplete vehicle manufacturers would not provide information about new conditions established as a result of the proposed requirements

until just before the time of model introduction. According to those comments, final stage manufacturers need to receive such information well in advance of the time of model introduction in order that they can design their vehicles in accordance with the conditions.

The agency was aware of the braking design problems associated with trucks, buses and MPV's, including those particularly affecting vehicles over 8,000 lbs. GVWR, when it issued the proposal. The proposal explained that while trucks, buses and MPV's should ideally stop in as short a distance as passenger cars, since they share the same roads and traffic flow, there are certain differences between those vehicles which make accomplishing that goal more difficult for trucks, buses and MPV's. The primary differences are the greater loaded to empty-weight ratio of trucks, MPV's and buses, the higher center of gravity found in those vehicles (which results in greater dynamic weight transfer during braking), the greater variations in loaded and unloaded weight distribution that occur in those vehicles and the lower traction capabilities of truck tires. Because these factors make it difficult to design braking systems which provide the appropriate brake torque for each axle under all braking and load conditions, the agency proposed stopping distances that were slightly longer than those in effect for passenger cars.

The notice also discussed the design problems particularly affecting trucks, buses and MPV's with a GVWR over 8,000 lbs. In order to stop in as short a distance as lighter vehicles, vehicles with GVWR of 8,000 lbs. or more require powerful rear brakes to meet fully loaded stopping distance requirements. When the vehicles are stopped in a lightly loaded condition, however, the powerful rear brakes can cause wheel-lockup and resulting vehicle instability. Because of these design problems, the agency proposed ranges of slightly longer third effectiveness test stopping distances for vehicles with a GVWR of 8,000 to 10,000 lbs than for vehicles with lower GVWR. In proposing the requirements, the agency stated that it was its intention to avoid requiring manufacturers to develop anti-lock or similar devices for their vehicles. While such systems may be able to overcome these problems, there is no field-tested anti-lock system for hydraulic-braked vehicles that is commercially available at this time.

The stopping distances proposed for the third and fourth effectiveness tests were based upon tests conducted by the agency on existing production vehicles and upon confidential brake development test data submitted by General Motors, Ford and Chrysler. Based upon its analysis of these data, the agency concluded that the proposed stopping distances for both the third and fourth effectiveness tests for vehicles with a GVWR of 8,000 to 10,000 lbs., including vehicles with unusually high centers of gravity and with both short and long wheelbases (which typically are more difficult to design brakes for than other vehicles), could be met without anti-lock or similar devices. Instead, the requirements could be met by modifications to such vehicle components as brake linings, wheel cylinders, master cylinders, and combination valves.

This conclusion does not, however, fully resolve the concerns raised about the requirements as they relate to final stage manufacturers. As noted above, final stage manufacturers, typically purchase incomplete vehicles from large manufacturers and complete the vehicles, often for specialized needs. Since only a limited number of incomplete vehicle designs are available for purchase, a final stage manufacturer must use the same incomplete vehicle design for widely varying applications. A given incomplete vehicle design may be completed as a pickup, a recreational vehicle, or a high cube van. Diverse equipment may be added such as service cranes, lift gates, ladders, aerial devices, and snow plows. Assuming that a final stage manufacturer does not redesign the braking system for each different use, the braking system sold with the incomplete vehicle by its manufacturer must serve applications with widely varying centers of gravity (i.e., varying both vertically and horizontally).

The agency estimates that a 10 percent rise in center of gravity location will lengthen the stopping distance of a typical vehicle by three percent if it is operating at the limit of tire traction for its rear wheels. Changes in horizontal center of gravity will also lengthen stopping distances in some instances. It follows that a vehicle which would barely meet the requirements of the proposed standard at the specific center of gravity for which it is designed, which would be the case for some vehicles with a GVWR of 8,000 to 10,000 lbs., would not be able to meet the requirements at centers

of gravity widely varying from the design one.

The agency agrees, after analysis of the comments received from final stage manufacturers, their trade associations, and incomplete vehicle manufacturers, that the increased center of gravity limitations which might be established for some vehicles of 8,000 to 10,000 lbs. GVWR if the proposal were adopted would pose significant difficulties for final stage manufacturers. (Some limitations are currently established by incomplete vehicle manufacturers in connection with their certification of Standards 212, 219, and 301.) In some instances, a final stage manufacturer would be unable to simply complete vehicles on the same incomplete vehicle that it is accustomed to using, as the center of gravity of the completed vehicles would not be within the center of gravity envelope specified by the incomplete vehicle manufacturer.

The final stage manufacturer would be faced with buying the same incomplete vehicles as before and recertifying them and possibly redesigning their braking systems. Since the sales of incomplete vehicles to final stage manufacturers are a very small percentage of the light truck sales of the incomplete vehicle manufacturers, the incomplete vehicle manufacturers are not likely to be willing to accommodate the final stage manufacturers by making major modifications to the line of incomplete vehicles they offer for sale, such as providing incomplete vehicles which are designed for a broader range of centers of gravity. The incomplete vehicle manufacturers have themselves indicated this reluctance in a number of rulemakings.

The agency has dealt with the certification problems of final stage manufacturers during other rulemaking proceedings. Since final stage manufacturers are often very small companies, which produce limited numbers of specialty vehicles, they often have limited resources for redesigning their vehicles, testing their vehicles for compliance with applicable safety standards, or making engineering judgments about the effect changes in a vehicle's center of gravity will have on the vehicle's performance. Therefore, the agency has sought to limit, consistent with the needs of safety, the compliance burdens on final stage manufacturers.

For example, the agency established special provisions affording relief to final stage manufac-

turers in Standards 212, Windshield Mounting, and 219, Windshield Zone Intrusion. See notice of Final Rule, published in the *Federal Register* (45 FR 22044) on April 3, 1980. One of the final stage manufacturer problems that was addressed in that rulemaking proceeding was center of gravity limitations established by incomplete vehicle manufacturers. The agency added the special provisions to Standards 212 and 219 for the purpose of inducing the reduction of center of gravity restrictions placed on final stage manufacturers by incomplete vehicle manufacturers.

In order to ease the certification problems of final stage manufacturers that are related to Standard 105, while providing the maximum safety benefits that are consistent with that objective, the agency determined that third effectiveness requirements should not apply to vehicles, other than school buses, with a GVWR of 8,000 to 10,000 lbs. The problem of center of gravity limitations as it relates to the proposed test requirements is primarily limited to the third effectiveness (lightly loaded) test. Since the test is conducted while the vehicle is in an unloaded condition, the manufacturer is constrained to test at the vehicle's center of gravity of the vehicle as configured. Center of gravity is not a serious problem for the other effectiveness tests, which are conducted at GVWR. For those tests, the manufacturer may load the vehicle in a way so as to lower the center of gravity and make compliance easier.

In order to provide manufacturers with some additional leeway in balancing the performance of their braking systems for both fully loaded and lightly loaded conditions, the agency also decided that the fourth effectiveness (fully loaded) stopping distances should be extended by approximately 10 percent for the 8,000 to 10,000 lb. GVWR vehicles. As noted above, if fourth effectiveness requirements are too stringent, vehicles would need overly powerful rear brakes that are prone to lock-up in the lightly loaded condition. The agency recognizes that it is more difficult to meet the proposed fourth effectiveness requirements for this class of vehicles without producing vehicles that are prone to lock-up, though, as indicated above, test data indicate that it can be accomplished. The relaxation of the fourth effectiveness requirements will assure that the manufacturers can use braking systems that

perform well in the lightly loaded condition.

In making these modifications to the proposed requirements for vehicles with a GVWR of 8,000 to 10,000 lbs., the agency decided that school buses within that weight class should be treated separately. School buses are already required to meet Standard 105's requirements, though the October 1979 notice proposed making the requirements more stringent. As will be explained below, the agency decided that the proposal's fourth effectiveness requirements for school buses with a GVWR of 8,000 to 10,000 lbs. should be extended by 10 percent (the same as other vehicles within that weight class), with the exception of the 30 mph test. The agency also decided that third effectiveness stopping distance requirements, at the longest distances proposed, should be applicable to school buses.

Since school buses are already covered by Standard 105, the agency has a great deal of test data indicating their braking capability. Because school buses with a GVWR of 8,000 to 10,000 lbs. share most of the same characteristics as other vehicles with the same weight, the agency decided that fully loaded effectiveness requirements should be the same for school buses as for other vehicles, with the one exception referred to above. School buses are already required to meet slightly more stringent requirements for fully loaded tests at 30 mph. Therefore, the agency will not relax those requirements. For fully loaded tests at other speeds, the requirements are more stringent than those currently in effect.

As noted above, both agency test data and several comments indicate that the proposed third effectiveness test requirements (at the longest stopping distances proposed) can be met by vehicles with a GVWR of 8,000 to 10,000 lbs., particularly when the proposed fourth effectiveness stopping distances are slightly relaxed. The agency's decision that third effectiveness test requirements should not be applicable to vehicles with a GVWR of 8,000 to 10,000 lbs. resulted from possible center of gravity conditions that incomplete vehicle manufacturers might establish for the use of their vehicles. Since school buses do not have high centers of gravity or widely varying horizontal centers of gravity, they do not pose the same problems for final stage manufacturers as other vehicles. Moreover, since completing a vehicle as a school bus adds

weight to the rear axle, the lightly loaded effectiveness test is more easily met by school buses than many other vehicles. The comments received that related to third effectiveness tests and final stage manufacturer difficulties did not identify the requirements for school buses as creating difficulties. Therefore, based upon a detailed analysis of test data, manufacturer-supplied information, and the comments, as well as on the safety need associated with school buses, the agency decided that third effectiveness test requirements should apply to school buses with a GVWR of 8,000 to 10,000 lbs.

The agency believes that the modifications in the standard that were discussed above will eliminate any possibility that incomplete vehicle manufacturers will find it necessary either to establish more stringent center of gravity limitations on the use of their incomplete vehicles or to develop anti-lock or similar devices in order to be able to continue to produce incomplete vehicles that comply with the standard for the range of applications needed by final stage manufacturers. Final stage manufacturers, therefore, will ordinarily be able to rely on the incomplete vehicle manufacturer's certification of the braking system.

In some rare cases, such as when a final stage manufacturer adds an axle or redesigns the braking system of an incomplete vehicle, the final stage manufacturer will be required to recertify that the completed vehicle complies with the brake requirements. Depending upon the changes made, the final stage manufacturer may be able to certify based upon engineering judgments. If testing is required, the agency estimates that the costs of a full test sequence would be approximately \$2,500, assuming that the manufacturer has no facilities, instrumentation or test personnel of its own. Testing would not have to be conducted for each vehicle, but only for each vehicle type or, in some cases, the most problem prone configuration of several vehicle types. There are several test facilities and testing organizations distributed throughout the United States.

Such major changes are rarely made by final stage manufacturers, and, if they are, they tend to be made by the larger of these manufacturers. When such changes are made, the agency believes it appropriate to require that the manufacturer making those changes ensure that

the vehicle still complies with applicable Federal motor vehicle safety standards.

In adopting these changes, the agency followed, in part, the suggestions of several of the commenters. The National Truck Equipment Association (NTEA), for example, suggested that if the agency extends the standard at this time, it should select 8,000 lbs. GVWR as the cutoff weight for Standard 105. That cutoff was said to address the brake proportioning difficulties inherent in vehicles with a wide weight differential in their laden and unladen conditions. The agency declined to completely exempt vehicles of 8,000 lbs. or greater GVWR from Standard 105's coverage, since the standard offers many benefits in addition to those resulting from the requirements that would cause difficulties for final stage manufacturers. However, the agency did use 8,000 lbs. GVWR as the cutoff weight for the standard's third effectiveness requirements, the requirements which most directly relate to the brake proportioning difficulties referred to by NTEA.

The agency followed the suggestions of several incomplete vehicle manufacturers and other commenters also in deciding to relax fourth effectiveness stopping distance requirements for 8,000 to 10,000 lb. GVWR vehicles. Since the agency concluded that the requirements could be met as proposed without anti-lock or similar devices, albeit with some difficulty, the agency declined to adopt Chrysler's suggestion of a 16 percent extension and instead chose the 10 percent extension suggested by other comments. The agency decided, based on test data, that a 10 percent extension would be sufficient to make it easier for manufacturers to assure that their vehicles' braking systems perform well in both fully loaded and lightly loaded conditions.

The agency considered and rejected the alternative of adopting different test requirements for final stage manufacturers or providing final stage manufacturers with a longer period of leadtime than other manufacturers. Either approach would result in a safety standard that was applied on the basis of the particular manufacturer of a vehicle rather than the safety needs of a particular vehicle type. The National Traffic and Motor Vehicle Safety Act contemplates the application of standards based on vehicle type rather than by manufacturer. Further, the agency determined



that the requirements as adopted, including lead-time, are appropriate for all manufacturers. Since incomplete vehicle manufacturers should not find it necessary to place significant new restrictions on the use of their chassis as a result of Standard 105, final stage manufacturers should not require any redesign of their vehicles.

While the standard's requirements have been relaxed to reduce certification burdens on final stage manufacturers and to make it easier for manufacturers to assure that their vehicles' braking systems are balanced for both lightly loaded and fully loaded conditions, the agency encourages manufacturers to recognize the safety advantages offered by better braking systems and, where possible, to produce vehicles which meet or exceed the more stringent requirements that were proposed.

A number of more general comments were received on the appropriateness of the 8,000 lb. GVWR boundary. American Motors/Jeep stated that it supported adoption of the 8,000 lb. GVWR cutoff as a reasonable first step in addressing the brake proportioning difficulties inherent in vehicles with a wide weight differential between their loaded and unloaded conditions. However, the commenter suggested that the agency investigate the feasibility of developing new criteria that respond directly to the laden to unladen ratio regardless of the vehicle's GVWR. Other comments, including those of General Motors, the Motor Vehicle Manufacturer's Association, Wagner Electric and NTEA also suggested that the agency consider an approach using a laden/unladen weight distribution ratio criterion. Several of those commenters emphasized that as vehicle downsizing continues, vehicles with a GVWR of under 8,000 lbs. will have the same balance problems as vehicles of 8,000 to 10,000 lbs. GVWR.

The agency recognizes that this may become a problem in the future, but only if manufacturers seek to hold GVWR constant as they downsize their fleets rather than keeping payload constant. Since the agency believes payload to be a better measure of a vehicle's utility than GVWR, the agency encourages manufacturers to keep a constant payload instead of a constant GVWR as they downsize their vehicles. The agency will monitor developments in this area.

A comment submitted by Daimler-Benz stated

that it saw no justification for an additional weight class of 8,000 to 10,000 lbs. GVWR and suggested that those vehicles be included with vehicles over 10,000 lbs. GVWR. According to that commenter, the brake regulations of some countries have a 3,500 kilogram (7716 lb.) weight limit, and some design characteristics of vehicles over 10,000 lbs. GVWR can also be found on vehicles with a GVWR of 8,000 lbs. As noted in the October 1979 notice, the agency is considering establishing more complete brake requirements for vehicles with a GVWR of over 10,000 lbs. but has not yet done so. This final rule brings the more complete requirements of Standard 105 to vehicles with a GVWR of 8,000 to 10,000 lbs. and includes requirements that are appropriate for all vehicles in that class, whatever their design characteristics.

As noted above, the comments concerning effectiveness requirements were largely directed at the requirements for vehicles with a GVWR of 8,000 to 10,000 lbs. However, some of the comments, including those of Chrysler and Wagner Electric, were also directed toward the fourth effectiveness requirements in general. Both the agency's own tests and confidential data submitted by the manufacturers indicate that recent models of almost all vehicles under 8,000 lbs. GVWR pass the effectiveness requirements. For any vehicles that do not, only minor changes would be required. As discussed above, it is easier to design braking systems for these vehicles than larger vehicles since they do not have as wide a weight differential between their loaded and unloaded conditions. Moreover, the type of work-performing equipment that can create center of gravity problems for final stage manufacturers is generally installed on vehicles with a GVWR of 8,000 lbs. or more. Therefore, no changes were made in the requirements as proposed for vehicles with a GVWR of under 8,000 lbs.

Comments submitted by Ford and Chrysler requested that both second and fourth effectiveness tests at 80 mph be eliminated in light of the 55 mph national speed limit. Ford also noted that actions required for fuel economy decrease the maximum speed capability of vehicles. The standard is written to require that the 80 mph test be met only if vehicles are capable of attaining a speed of 84 mph. Therefore, vehicles which cannot attain

that speed need not comply with the 80 mph requirements. Since many vehicles can attain speeds well in excess of 80 mph and some vehicles are at times driven at those high speeds, despite the 55 mph national speed limit, the agency believes that 80 mph requirements are appropriate and in the interest of safety.

#### **Fade Recovery; Water Recovery**

The October 1979 notice explained that the fade and recovery requirements were included to assure that a vehicle's braking performance is satisfactory when exposed to the high brake temperatures caused by prolonged or severe use, such as is found in long, downhill driving. The proposal requires that vehicles be capable of passing two successive fade and recovery tests. The water recovery requirements assure that a vehicle's braking system performs adequately after immersion in water.

The comments on these tests were limited to the fade and recovery requirements. Chrysler stated that the fade tests simulate abuse that is rarely, if ever, encountered in actual customer service. That commenter stated that the fade tests, coupled with the fourth effectiveness requirements which follow the fade tests, would result in braking systems that are biased toward the rear brakes. According to Chrysler, rear biased brakes would be prone to lock-up in the lightly loaded condition. Wagner Electric submitted a similar comment and suggested that the second fade and recovery test and the fourth effectiveness test were redundant. That commenter suggested that those two tests be eliminated to simplify the test procedures of Standard 105.

The concern that the test requirements would result in braking systems biased toward the rear brakes was largely discussed in the preceding section of this notice. The proposed requirements of Standard 105 included both fully loaded and lightly loaded tests. The agency concluded, based upon its own vehicle tests and on information submitted by manufacturers, that the proposed test requirements could be met by changes in various braking system components. So long as both fully loaded and lightly loaded requirements were met, the braking system would be properly balanced for both fully loaded and lightly loaded conditions. By extending the fourth effectiveness requirements by 10 percent for vehicles with a

GVWR of 8,000 to 10,000 lbs., additional leeway was provided to manufacturers in designing their braking systems to be properly balanced. As noted above, no changes were made in the requirements applicable to vehicles with a GVWR of under 8,000 lbs., since recent models of most of those vehicles already pass the effectiveness requirements. Only minor changes are required for those vehicles that do not.

The two fade tests were designed to produce first a mild to moderate fade condition and then a more severe fade condition. Light fade occurs in vehicles even in low speed applications such as in heavy traffic. Moderate to severe fade is a condition that may occur when vehicles are used on hilly or mountainous roads, especially when heavy loads are carried. Far from being redundant, the second fade test simulates the type of fade experienced during long mountain descents. The agency has verified that the temperatures produced by the test sequence are the same temperatures as sometimes experienced during long mountain descents. The fade and recovery test requirements assure that brakes do not perform abnormally while subject to the heat caused by severe use or during the time that the brakes are cooling off after severe use.

The fourth effectiveness test is a complete effectiveness test that is conducted after most of the other tests, including the fade tests, have been completed. This test is included to give an overall system evaluation to assure that a braking system retains satisfactory characteristics related to effectiveness, pedal force, and sensitivity after exposure to the types of conditions simulated during the test sequence.

A comment submitted by the American Trucking Associations (ATA) suggested that the proposed fade requirements are severe enough to adversely affect user acceptance in normal service. According to ATA, compromises in such things as loss of feel and hard pedal in order to achieve greater fade resistance may be necessary. The comment also suggested that fade resistance tests developed in the past may be outdated as vehicles are becoming less powerful.

The agency tested a number of production vehicles before proposing the fade requirements and found that almost all of them met the requirements. The only vehicles tested by the agency which appeared to present problems were

some small imported pickup trucks. Since many other vehicles passed the requirements, without having problems such as loss of feel or hard pedal, it is clear that braking systems can be designed to meet the fade requirements without having the problems suggested by ATA. Since fade tests primarily apply to a vehicle's downhill performance, the requirements are appropriate for vehicles even if they are less powerful than in the past.

#### **Partial System Failure; Failed Power-Assist/Power Units**

Partial system failure requirements were included to ensure that a vehicle's brakes are capable of bringing the vehicle to a controlled stop in a reasonable distance if a part of the service brake system should fail. Stopping distance requirements were also proposed for vehicles with failed power-assist or brake power units.

The October 1979 notice explained that many manufacturers currently provide what are called split brake systems to provide braking capacity in the event of a partial failure. The split system consists of two or more brake subsystems, each of which is not affected by leakage or failure in the other subsystem. Split systems are typically used on passenger cars, school buses, light trucks and vans. Under the proposed requirements, all hydraulic braked vehicles are required to utilize a split or redundant brake system.

Several commenters stated that the stopping distances for partial failure and for inoperative brake power and power assist units for vehicles with a GVWR over 10,000 lbs. are too stringent. Daimler-Benz stated that the requirements could only be met if the operative braking system has an increased capacity.

In a late submission to the docket, Wagner Electric asserted that agency tests substantiating the capability to meet the partial system requirements for vehicles over 10,000 lbs. were based on the two most effective of the possible partial systems. The commenter stated that no data was provided on vertical split systems and suggested that the requirements as proposed would encourage forms of split systems, such as vertical split systems, that would inordinately increase the level of front brake torque (i.e., make the front brakes overly powerful) and contribute toward lock-up on icy or wet roads. (A vertical

split system essentially consists of one subsystem that supplies braking power to the front brakes and another subsystem that provides power to the back brakes. This contrasts with a variety of other types of split systems. Some horizontal split systems, for example, consist of two subsystems that each provide some braking power to each wheel. The two types of split systems which Wagner Electric's comment suggested are the most effective are a horizontal split and a 1- 1/2 x 1/2 split, a system with some of the attributes of a horizontal split system.) A comment submitted by ATA also suggested that the requirements would mandate overly powerful, aggressive front brakes.

Several commenters suggested that the stopping distance requirements for vehicles over 10,000 lbs. GVWR be relaxed. Wagner Electric suggested that the requirements currently in effect for school buses be adopted.

The partial system failure and failed power assist or brake power unit requirements were proposed by the agency after careful analysis of its own vehicle test results and of confidential data submitted by manufacturers. These data indicate that many production vehicles already meet the proposed requirements. The current school bus requirements were issued in 1975 under a short-term statutory deadline. Analysis of current school bus data indicates that many school buses already meet the more stringent requirements proposed by the October 1979 notice. As with other stopping distance requirements, there is some increment of safety benefit for each reduction of stopping distance. When partial failure of the service brake system occurs or brake power or power assist units become inoperative, it is important that a vehicle be able to stop in a reasonable distance, especially when that vehicle has the aggressivity associated with a GVWR of over 10,000 lbs.

In regard to Wagner Electric's comment concerning vertical split systems, it is true that if the subsystem providing power to the rear brakes in a vertical split system fails, the subsystem providing power to the front brakes would be required to meet the stopping distance requirements under the standard. Therefore, in order to meet this requirement with a vertical split system, a vehicle would need relatively powerful front brakes. Similar requirements

have been in effect for vehicles with air brakes under Standard 121, and European regulations necessitate even more powerful front axle brakes without safety problems.

Moreover, in keeping with the National Traffic and Motor Vehicle Safety Act, the requirements are written as performance requirements and not design requirements. Manufacturers may meet the requirements in many different ways and are not required to use vertical split systems. Indeed, the selection of a means of compliance that poses significant safety risks could raise a safety defect issue. If Wagner Electric is concerned that vertical split systems may contribute to lock-up when used on some vehicle configurations, the manufacturer has the option to use other types of split systems, such as horizontal splits, or a redundant split system. When one of the subsystems of a horizontal split system fails, some braking power is still provided to each wheel by the operative subsystem, so the stopping distances do not have to be met solely by the power provided to the front wheels. Therefore, the braking system does not have to have relatively powerful front brakes in order to meet the requirements. This would also be true for some other types of split systems and for redundant systems.

Wagner Electric also stated that the 150 lb. maximum pedal force specified for the requirements is too low and might result in overly sensitive brakes. That company suggested that a 200 lb. pedal force be adopted.

An analysis of the data referred to above indicates that many vehicles on the road already meet this requirement, without experiencing problems of oversensitivity. While Wagner Electric suggests in its comment that even a small person can reach a 200 lb. pedal effort, the agency has found that small females have difficulty even applying forces of less than 150 lbs.

Moreover, when a driver is used to applying very little force to bring a vehicle to a stop, the driver is likely to believe that the braking system has failed entirely, rather than only partially, if the driver applies maximum force and cannot feel the vehicle braking. Reports of "no brakes" are sometimes given in accident reports where only a partial failure has occurred. Therefore, it is important that a vehicle's braking system respond noticeably when a driver is applying significant force in a partial failure or

failed power assist or brake power unit situation.

A comment submitted by the Metropolitan Transit Agency of Dade County, Florida, called for lower pedal force requirements. That commenter cited the difficulty smaller drivers have in bringing a large bus to a stop after loss of vacuum. In establishing the 150 lb. pedal force, the agency took account of both the need to establish a level of pedal force appropriate for smaller drivers and to keep it high enough that brakes will not be oversensitive in ordinary use. That commenter also suggested that the agency establish requirements for vacuum reserve. The agency included optional procedures in Standard 105 that encourage manufacturers to include vacuum reserves by permitting slightly longer stopping distances in the no power tests if the vehicle has the capability of making several stops in consecutive order with gradually decreasing capabilities. The agency recognizes the safety advantages offered by vacuum reserves, but has not, as of yet, proposed that they be required.

A comment submitted by the Recreation Vehicle Industry Association (RVIA) requested that the test procedures for vehicles with a GVWR of over 10,000 lbs. be changed to require less stops and snubs to condition the brakes. The agency declines to make this change since a significant number of stops and snubs is required in order that a braking system's capability be tested in a "worn-in" condition.

#### **Equipment Integrity**

Comments on the requirements concerning equipment integrity were primarily limited to the spike stop requirements. RVIA suggested that the spike stop test requirements are inappropriate for motor homes. According to RVIA, it is unaware of a single case where a weakness that the spike stop test would uncover has ever been found in a motor home.

The spike stop test requirements were developed to determine the structural integrity of a vehicle's braking system. Vehicles must be capable of making several very sudden stops without loss of brake system structural integrity. Virtually all types of vehicles, including motor homes, are at times subjected to the abuse caused by very sudden stops. If the vehicle's braking system loses its structural integrity during such stops, serious accidents could result.

## Parking Brakes

The October 1979 notice proposed parking brake performance requirements designed to ensure that vehicles have adequate grade holding performance. Under the proposal, vehicles with a GVWR of 10,000 lbs. or less are to meet these requirements on a grade of 30 percent, when a maximum force of 90 lbs. is applied to hand-operated parking brake systems and 125 lbs. is applied to foot-operated parking brake systems. While no comments were received that were specifically opposed to the establishment of parking brake requirements for light trucks, several submissions did comment on the appropriateness of the 30 percent gradient and the maximum force requirements.

The Japan Automobile Manufacturers Association and Toyo Kogyo stated that a 30 percent gradient is too stringent. According to those comments, some vehicles have difficulty climbing a 30 percent grade when fully loaded. They requested that a gradient of 18 percent be adopted, stating that European and Australian safety standards incorporate that requirement.

The 30 percent gradient requirement, which is the same as that in effect for passenger cars and school buses with a GVWR of 10,000 lbs. or less, represents a degree of steepness that is found on roads in some parts of the United States. While the agency is unaware of any light trucks that cannot climb a 30 percent grade, even a vehicle that has difficulty climbing a 30 percent grade may on occasion be parked on such a steep hill. Moreover, recognizing the dangers inherent if a vehicle's grade holding performance is inadequate, the agency established the requirements with a view toward providing a margin of safety for parking brake systems. The safety margin will prevent accidents from occurring when vehicles are parked on more commonly found grades, in some instances, where parking brake systems have deteriorated over time or are improperly adjusted. It is also noted that although European regulations have only an 18 percent grade-holding requirement, those regulations also require a dynamic stopping performance test using the parking brake.

Several commenters stated that the maximum force requirements proposed by the standard for vehicles with a GVWR of 10,000 lbs. or less are

too stringent. Those commenters suggesting changes requested either that European requirements be followed (said to be 132 lbs. for hand-operated systems) or that current requirements for school buses be followed (125 lbs. for hand-operated systems and 150 lbs. for foot-operated systems).

The 90 lb. and 125 lb. requirements proposed by the notice are the same as those in effect for passenger cars. They were chosen by the agency as the maximum force requirements that are appropriate for small females. Since small females may be expected to drive light trucks, it is appropriate to require that parking brake systems be designed with their needs in mind. Moreover, the agency established the 90 lb. and 125 lb. requirements with a recognition that some parking brake systems are located in positions within the vehicle which are awkward for drivers to reach. The 90 lb. and 125 lb. requirements therefore provide a margin of safety for instances where drivers have difficulty applying adequate force to parking brake systems because of their location.

As with the other requirements of the proposal, the agency established the parking brake requirements after conducting tests on production vehicles. Neither the agency's test results or any comments submitted indicate that manufacturers will have difficulty meeting the parking brake requirements.

## Costs and Benefits

The agency has considered the economic and other impacts of this final rule and determined that this rule is not significant within the meaning of Executive Order 12221 and the Department of Transportation's policies and procedures implementing that order. The agency's assessment of the benefits and economic consequences of this final rule are contained in a regulatory evaluation that has been placed in the docket for this rule-making. Copies of that regulatory evaluation can be obtained by writing NHTSA's docket section, at the address given in the beginning of this notice.

The October 1979 notice explained that a regulatory evaluation had been prepared before issuing the notice and had been included in the docket. A number of comments were received on the costs and benefits of the proposed requirements.

Ford stated that although its cost analyses were not complete, it had sufficient information to indicate that the proposed requirements would affect a greater number of Ford products and cost considerably more than the agency had estimated. Chrysler stated that the requirements would necessitate the redesign of the parking brake systems on all of its light trucks and require some degree of revision to master cylinders, brake boosters, and/or foundation brakes on 80 to 90 percent of its light trucks. That company also indicated that it would find it necessary to engage in considerably more testing than estimated by the agency in order to meet the proposed requirements.

Both Ford and Chrysler suggested that several requirements be relaxed in order to reduce the costs of the proposed standard. Ford requested that first, second and fourth effectiveness test stopping distances be relaxed for all vehicles and that third effectiveness test stopping distances be relaxed for vehicles with a GVWR of 8,000 to 10,000 lbs. Ford also requested that the stopping distance requirements for the failed system and spike stop check tests be relaxed and that the maximum parking brake force requirements be changed from 125 lbs. to 150 lbs. Chrysler asked that fourth effectiveness test stopping distances be extended by 16 percent and that the maximum parking brake force requirements be changed from 125 lbs. to 150 lbs.

General Motors stated that while it supported NHTSA action to require split service brake systems on vehicles over 10,000 lbs. GVWR, a considerably larger number of those vehicles would require changes than estimated by the agency. According to GM, optional split service brake systems were purchased on only two percent of its hydraulic braked heavy-duty vehicles in model year 1979.

In order to aid in developing its cost estimates, the agency enlisted an outside contractor before issuing the October 1979 notice to conduct an independent assessment of the costs that would be involved. A report prepared by the IIT Research Institute (IITRI), which was included in the docket, substantially verified the cost estimates made by NHTSA, with one exception.

As the regulatory evaluation explained, estimates on the light truck brake system costs differed, reflecting the different methodologies

used by IITRI and NHTSA. Since NHTSA's estimates were based on actual test results and confidential data submitted by the manufacturers, which were unavailable to IITRI, the regulatory evaluation used NHTSA figures for light truck brake system costs. IITRI figures were used for development/compliance test costs and cost estimates for medium and heavy duty trucks.

A revised regulatory evaluation, which has been placed in the docket, was prepared by the agency to accompany the issuance of this final rule. Revisions were made in the regulatory evaluation to reflect the latest information available to the agency.

The comments by Ford and Chrysler were difficult to evaluate since they gave only generalized bases for their assertions that a greater number of vehicles would be affected by the standard than estimated by the agency. While those commenters cited some additional braking system components that might require changes, they did not specify which vehicles would require the changes or indicate what the costs of those changes would be.

For example, while Chrysler asserted that the requirements would necessitate the redesign of the parking brake systems on all of its light trucks, it did not indicate its basis for believing that substantially more of its light trucks would require upgrading of their parking brake systems than estimated by the agency. Nor did it indicate what changes would be required or the costs of those changes. Ford stated that preliminary test results indicate that the proposal would necessitate for some models, in addition to those changes assumed by the agency to be required, the addition of hydraulic boosters or larger hydraulic boosters and revisions to brake pedals, power steering pumps, hoses and tires. Ford did not indicate the nature of the preliminary test data it was relying upon. Nor did that commenter specify what models would require additional changes or indicate the costs of those changes. Also, while Ford requested numerous changes in the proposed requirements, it did not attempt to support the specific changes it requested.

In light of the agency's own detailed evaluation of the changes made necessary by the requirements and of the costs of those changes, which was based upon test data and manufac-

turer-supplied information, as well as the independent assessment made by IITRI, the agency continues to believe that its cost estimates are correct, with one exception noted below.

The agency did change the regulatory evaluation's estimate of the number of vehicles with a GVWR over 10,000 lbs. requiring split brake systems. The agency had anticipated that a greater percentage of those vehicles would be purchased with optional split brake systems. While the number of vehicles affected by that requirement is greater than originally estimated by the agency, the cost per vehicle remains the same, and the agency believes the requirements to be fully justified by the benefits that will accrue.

Other comments that were received concerning costs related to costs of developing anti-lock or similar devices, such as brake system pressure modifiers, and cost that would be borne by final stage manufacturers. As explained fully above in the portion of this notice entitled "Effectiveness Requirements," manufacturers will not find it necessary to develop anti-lock or similar devices, nor will final stage manufacturers in most cases have any costs as a result of the standard. Instead, final stage manufacturers will ordinarily be able to rely on the incomplete vehicle manufacturer's certification of the braking system.

The October 1979 notice explained that the proposal was a continuation of prior NHTSA rulemaking on Standard 105. While the extension of Standard 105 to trucks, buses and MPV's had proceeded to the adoption of a final rule, that extension was indefinitely delayed in April 1975 because the agency had determined that although the benefits of the rule would be substantial, the costs of the standard, particularly for heavy trucks, warranted delaying the standard. See 40 FR 18411, April 28, 1975.

Manufacturers have made a number of significant improvements in their braking systems since that time on a voluntary basis, largely following the requirements and test procedures of the delayed final rule. Because of those improvements, as well as some changes made in the requirements by the agency, the costs of the standard today are only a small fraction of what they would have been in 1975.

The April 1975 notice stated that manufac-

turers had submitted costs for light to medium duty trucks that ranged from \$54 to \$775 per unit (depending on model configuration) to attain compliance with the standard. The agency compared those figures with independently gathered detailed cost information and substantiated that the manufacturers' estimates were accurate. In contrast to those figures, the agency today estimates that the average cost per domestic light truck, bus, or MPV with a GVWR of 10,000 lbs. or less is only \$2.71, or about \$21.24 for each vehicle that needs to be upgraded in braking system performance. The costs for meeting the partial failure and warning indicator requirements for medium and heavy trucks (over 10,000 lbs. GVWR) are estimated to be about \$54 per vehicle. The total costs of meeting the standard's requirements for all trucks, buses and MPV's are estimated to be under \$18 million.

As explained elsewhere in this notice, the regulatory evaluation, and the October 1979 notice, the agency carefully evaluated the costs and benefits of the proposed requirements. In analyzing costs, the agency estimated how the requirements would affect each manufacturer on a model-by-model basis. In light of this detailed analysis and evaluation, the agency declined to relax particular requirements on the sole ground that they would result in some costs to manufacturers.

A number of comments were also received that related to the benefits of the standard. Ford stated that the proposed requirements have not been justified as being the minimum necessary to provide safe operation of the affected vehicles. That commenter stated that the agency had not provided evidence that the levels of braking performance of today's vehicles are causative factors in the accidents involving those vehicles.

Ford also stated that the estimate of benefits presented in the agency's regulatory evaluation is based on inappropriate data and incomplete analysis. In particular, that commenter stated that a study by the Institute for Research in Public Safety (IRPS) that was cited by the regulatory evaluation does not support the conclusion that a 5 to 10 percent reduction in accidents could be obtained by a 5 percent shortening of stopping distances. That study was based on a sample of skidding accidents, and the finding was related to the benefits that would accrue if

vehicles were equipped with anti-lock braking systems. According to Ford, that finding does not relate to the effect on accidents that would be attributable to the implementation of the proposed requirements, since the requirements do not anticipate the introduction of anti-lock braking systems. That company also asserted that the relationship between measured vehicle parameters such as specific stopping distances derived under specified test conditions and the safety effectiveness of the same vehicle in customer service has yet to be established.

A similar comment was submitted by NTEA. That commenter stated that by failing to demonstrate why an increase in light truck accident fatalities has occurred or that the proposed standard will in any way reduce those fatalities, the NHTSA data are seriously deficient. NTEA also stated that since the requirements will affect only 17 percent of the vehicles subject to the standard, NHTSA is obligated to identify that 17 percent segment as the cause of the safety problem. (As a result of the agency revising its estimate of the number of vehicles with a GVWR over 10,000 lbs. requiring the addition of split service brake systems, discussed above, the percentage of vehicles requiring changes as a result of the standard is now estimated to be about 20 percent.)

The October 1979 notice explained that in carrying out the mandate of the National Traffic and Motor Vehicle Safety Act to issue vehicle safety standards to protect the public against unreasonable risk of vehicle accidents and of death or injury occurring as a result of such accidents, the agency is confronted with inherent problems that limit the degree of certainty and precision achievable in estimating the effectiveness and therefore benefits of proposed standards. While engineering and accident analyses can clearly demonstrate that certain vehicle improvements will facilitate the performance of the driver's task and thereby improve safety, it is virtually impossible to isolate individual factors to arrive at precise and certain conclusions about the quantified benefits that will accrue.

Given the duty to act in the area of accident avoidance notwithstanding an inherent measure of imprecision and uncertainty, the agency has developed and issued accident avoidance standards while attempting within its capabilities to

quantify the benefits of the standards and limit the uncertainty. The extension of Standard 105 is no different, and, given the inevitable residual uncertainty, the decisionmaking regarding the precise requirements rests in part on policy judgment.

The braking system of a vehicle clearly provides its most important accident avoidance capability. Common sense, as well as basic traffic theory, indicate that a vehicle with a shorter stopping distance capability will be safer than the same vehicle with a longer stopping distance capability, assuming that other parameters such as vehicle stability are held constant. Also, as noted above, since light trucks, buses, and MPV's share the same traffic flow as passenger cars, they should ideally have the same stopping distance capability.

As fully explained above, the agency carefully evaluated the costs of improving braking systems for light trucks, buses and MPV's and proposed requirements that, in its judgment, were economical. In recognition of the costs and problems associated with anti-lock or similar devices, the agency proposed requirements that could be met, where upgrading was required, by simple, state-of-the-art changes to the types of braking systems in use. Since braking ability is an extremely important safety factor and stopping distances can economically be made significantly shorter for light trucks, buses, and MPV's, the agency believes that the braking ability of those vehicles creates an unnecessary risk.

Because available accident data and studies are limited, it is very difficult to make estimates as to the precise benefits that will result from improving a vehicle's accident avoidance capability. The best information available to the agency in estimating the benefits resulting from improved stopping distances was the IRPS study, which was based on a survey of skidding accidents. Skidding accidents are useful for analysis because they leave physical evidence indicating the braking distance of a vehicle prior to impact. Based upon that study, the agency concluded that a 5 to 10 percent reduction of accidents could be obtained by a 5 percent shortening of stopping distances.

The proposed requirements would result in a reduction of skidding accidents, despite the fact that anti-lock or similar devices are not con-



templated, since some vehicles would have their braking balance improved. Also, with better braking capability, drivers might be less prone to applying their brakes in a manner that would result in skids. While the IRPS data may not be ideal, since it looked at some types of skidding accidents that would not be prevented by the requirements and did not look at some accidents that would be prevented (i.e., those that do not leave skid marks), the agency believes that it does provide evidence that is useful in analyzing all accidents where braking is attempted.

The 105 test sequence was designed to simulate real world conditions. A vehicle's braking system is tested, for example, in new and broken-in conditions, at various speeds, while the vehicle is fully and lightly loaded, under varying conditions of fade, and under partial failure and failed power. Thus, the test does relate to performance in customer service.

In deciding to propose the extension of Standard 105 to light trucks, buses and MPV's, the agency was very concerned about the recent increase in light truck fatalities. However, the extension is directed at all accidents and not merely at the increase in accidents as suggested by NTEA.

As noted above, manufacturers have largely improved the braking performance of many of the vehicles subject to this standard since the final rule was delayed in 1975. Because of these improvements, changes will be required in only about 20 percent of the vehicles subject to the standard. The only effect on the other 80 percent of vehicles is that manufacturers will not be able to reduce the performance of those vehicles' existing braking systems.

The agency believes it appropriate to require that manufacturers maintain the current level of braking performance for that 80 percent segment of vehicles. In the 1960's, for example, stopping distances of passenger cars lengthened as a result of increased weight. Today, the agency is concerned that manufacturers might reduce the braking ability of their vehicles as part of an effort to improve fuel economy. Since some braking system components are relatively heavy, the braking system is a prime target for weight reduction. The agency believes braking ability to be such an important safety factor that it should not be compromised by efforts to improve fuel economy.

Because of the limitations of available accident data, it is difficult and sometimes impossible to use available accident data to determine the accident rates of particular vehicle types. As noted above, the agency believes the braking ability of those vehicles requiring upgrading of their braking systems to create an unreasonable risk, since that ability can economically be significantly improved.

#### Miscellaneous Comments

The Japan Automobile Manufacturers Association stated that separate requirements should be applicable to vehicles used for passengers and those used for cargo. That request is similar to ones received during other rulemaking proceedings to establish separate requirements for commercial applications.

The National Traffic and Motor Vehicle Safety Act contemplates the application of standards based on vehicle type instead of vehicle use. Basing a standard on vehicle use would present difficult enforcement problems. It would also place a manufacturer in the difficult position of having to assess in advance the potential future use of the vehicle. Further, basing standards on vehicle use does not recognize that a vehicle may have two or more uses during its lifetime. Therefore, the agency has declined to establish separate requirements based upon vehicle use.

The Japan Automobile Manufacturers Association also requested that all vehicles with a GVWR over 10,000 lbs., other than school buses, be included in Standard 130 under contemplation. Daimler-Benz also requested that vehicles over 10,000 lbs. be included in one standard, whether they have air brakes or hydraulic brakes. Based upon the differences between air brake systems and hydraulic brake systems, the agency has issued separate standards for the two types of braking systems. Standard 121 currently applies to air braked vehicles and Standard 105 to hydraulic braked vehicles.

The agency has issued an advance notice of proposed rulemaking for a new standard to apply to heavy duty brake systems, Standard 130, which addressed issues for which rulemaking is at least several years away. See 45 FR 13155, February 28, 1980. A notice of proposed rulemaking, with opportunity to comment, would be issued if the agency decides to proceed with that standard.

General Motors stated that the proposed requirements of Standard 105 may not be appropriate for electric vehicles which are under development. Since these vehicles are still in the development stage, the agency is unable to establish at this time what types of changes, if any, would be appropriate for electric vehicles. The agency will consider the need for different requirements for electric vehicles when more information is available as to what characteristics those vehicles will have.

Wagner Electric requested that the weight permitted for driver and instrumentation on vehicles with a GVWR of 10,000 lbs. or less for the lightly loaded tests be increased from 300 lbs. to 400 lbs. to permit the use of more recording equipment. Since the lightly loaded tests measure the braking ability of a vehicle while unloaded, it is desirable to keep the weight as low as possible. However, after evaluating the types of instrumentation that are used to certify compliance with Standard 105, the agency agrees that increasing the weight allowance for driver and instrumentation from 300 lbs. to 400 lbs. for vehicles with a GVWR of 10,000 lbs. or less will allow the use of additional types of instrumentation that will be useful in evaluating the performance of a vehicle's braking system. Moreover, the agency has determined that the slight increase in weight will not adversely affect the results of the lightly loaded tests.

One commenter suggested that the standard's requirements might have an adverse effect on tire manufacturers, since tires are an important parameter in complying with the standard and manufacturers would not have the time, funds or facilities to test every kind of tire. Manufacturers will not be required to test all kinds of tires, since they purchase tires according to specifications. Normal production tires were used in all tests relied on by the agency in establishing the standard's requirements. The standard has been in ef-

fect for several years for passenger cars and school buses without adverse effects on tire manufacturers.

#### Leadtime

Numerous comments were received on the proposed effective date of the requirements. The agency evaluated those comments and agrees with a number of them that a minimum of 2 years leadtime is appropriate. The effective date of the standard was changed to September 1, 1983, which gives a leadtime well in excess of 2 years and corresponds with the start of a new model year.

Chrysler stated that it required a leadtime of 30 months if its recommendations were adopted and 42 months if its recommendations were not adopted. The extra 12 months beyond 30 months were said to be needed to develop load-sensing or deceleration-sensing proportioning valves. As explained fully in this notice, no manufacturer will be required to develop anti-lock or similar devices in order to be able to comply with the standard's requirements. The effective date of this final rule gives a leadtime of approximately 30 months.

The principal authors of this notice are George L. Parker, Office of Vehicle Safety Standards, and J. Edward Glancy, Office of Chief Counsel.

In consideration of the foregoing, §571.105, Chapter V of Title 49, Code of Federal Regulations, is amended accordingly.

Issued on December 22, 1980.

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Joan Claybrook  
Administrator

46 FR 55  
January 2, 1981

## MOTOR VEHICLE SAFETY STANDARD NO. 105-83

### Hydraulic Brake Systems

**S1. Scope.** This standard specifies requirements for hydraulic service brake and associated parking brake systems.

**S2. Purpose.** The purpose of this standard is to insure safe braking performance under normal and emergency conditions.

**[S3. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses with hydraulic service brake systems. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S4. Definitions.** "Antilock system" means a portion of a service brake system that automatically controls the degree of rotational wheel slip at one or more road wheels of the vehicle during braking.

"Backup system" means a portion of a service brake system, such as a pump, that supplies energy in the event of a primary brake power source failure.

"Brake power assist unit" means a device installed in a hydraulic brake system that reduces the operator effort required to actuate the system, and that if inoperative does not prevent the operator from braking the vehicle by a continued application of muscular force on the service brake control.

"Brake power unit" means a device installed in a brake system that provides the energy required to actuate the brakes, either directly or indirectly through an auxiliary device, with the operator action consisting only of modulating the energy application level.

"Hydraulic brake system" means a system that uses hydraulic fluid as a medium for transmitting

force from a service brake control to the service brake, and that may incorporate a brake power assist unit, or a brake power unit.

"Initial brake temperature" means the average temperature of the service brakes on the hottest axle of the vehicle 0.2 miles before any brake application.

["Lightly loaded vehicle weight" means:

(a) for vehicles with a GVWR of 10,000 pounds or less, unloaded vehicle weight plus 400 pounds (including driver and instrumentation);

(b) for vehicles with a GVWR greater than 10,000 pounds, unloaded vehicle weight plus 500 pounds (including driver and instrumentation). (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

"Parking mechanism" means a component or subsystem of the drive train that locks the drive train when the transmission control is placed in a parking or other gear position and the ignition key is removed.

"Pressure component" means a brake system component that contains the brake system fluid and controls or senses the fluid pressure.

"Skid number" means the frictional resistance of a pavement measured in accordance with American Society for Testing and Materials (ASTM) Method E-274-70 (as revised July, 1974) at 40 mph, omitting water delivery as specified in paragraphs 7.1 and 7.2 of that method.

"Snub" means the braking deceleration of a vehicle from a higher reference speed to a lower reference speed that is greater than zero.

"Spike stop" means a stop resulting from the application of 200 pounds of force on the service brake control in 0.08 second.

"Split service brake system" means a brake system consisting of two or more subsystems actuated by a single control designed so that a leakage-type failure of a pressure component in a single subsystem (except structural failure of a housing that is common to two or more subsystems) shall not impair the operation of any other subsystem.

"Stopping distance" means the distance traveled by a vehicle from the point of application of force to the brake control to the point at which the vehicle reaches a full stop.

"Variable proportioning brake system" means a system that automatically adjusts the braking force at the axles to compensate for vehicle static axle loading and/or dynamic weight transfer between axles during deceleration.

## S5. Requirements.

**[S5.1 Service brake systems.** Each passenger car and each multipurpose passenger vehicle, truck, and bus with a GVWR of 10,000 lbs. or less, and each school bus with a GVWR of greater than 10,000 lbs. shall be capable of meeting the requirements of S5.1.1 through S5.1.6 under the conditions prescribed in S6, when tested according to the procedures and in the sequence set forth in S7. Each multipurpose passenger vehicle, truck, and bus (other than a school bus) with a GVWR greater than 10,000 lbs. shall meet the requirements of S5.1.2 and S5.1.3 under the conditions specified in S6 when tested according to the procedures and in the sequence set forth in S7. Except as noted in S5.1.1.2 and S5.1.1.4, if a vehicle is incapable of attaining a speed specified in S5.1.1, S5.1.2, S5.1.3, or S5.1.6, its service brakes shall be capable of stopping the vehicle from the multiple of 5 mph that is 4 to 8 mph less than the speed attainable in 2 miles, within distances that do not exceed the corresponding distances specified in Table II. If a vehicle is incapable of attaining a speed specified in S5.1.4 in the time or distance interval set forth, it shall be tested at the highest speed attainable in the time or distance interval specified. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**[S5.1.1 Stopping distance.** The service brakes shall be capable of stopping each vehicle, other than a vehicle which both has a GVWR of not less than 8,000 pounds and not greater than 10,000 pounds and is not a school bus, in four effective-

ness tests within the distances and from the speeds specified in S5.1.1.1, S5.1.1.2, S5.1.1.3, and S5.1.1.4. The service brakes shall be capable of stopping each vehicle which both has a GVWR of not less than 8,000 pounds and not greater than 10,000 pounds and is not a school bus, in three effectiveness tests within the distances and from the speeds specified in S5.1.1.1, S5.1.1.2, and S5.1.1.4. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S5.1.1.1** In the first (preburnished) effectiveness test, the vehicle shall be capable of stopping from 30 mph and 60 mph within the corresponding distances specified in Column I of Table II.

**[S5.1.1.2** In the second effectiveness test, the vehicle shall be capable of stopping from 30 and 60 mph within the corresponding distances specified in Column II of Table II. If the speed attainable in 2 miles is not less than 84 mph, a passenger car or other vehicle with a GVWR of 10,000 pounds or less shall also be capable of stopping from 80 mph within the corresponding distances specified in Column II of Table II. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S5.1.1.3** In the third effectiveness test the vehicle shall be capable of stopping at lightly loaded vehicle weight from 60 mph within the corresponding distance specified in Column III of Table II.

**S5.1.1.4** In the fourth effectiveness test, a vehicle with a GVWR of 10,000 pounds or less shall be capable of stopping from 30 and 60 mph within the corresponding distances specified in Column I of Table II. If the speed attainable in 2 miles is not less than 84 mph, a passenger car [or other vehicle with a GVWR of 10,000 lbs. or less] shall also be capable of stopping from 80 mph within the corresponding distance specified in Column I of Table II. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)

If the speed attainable in 2 miles is not less than 99 mph, a passenger car shall, in addition, be capable of stopping from the applicable speed indicated below, within the corresponding distance specified in Column I of Table II.

<i>Speed attainable in 2 miles (mph)</i>	<i>Required to stop from (mph)</i>
not less than 99 but less than 104	95
104 or more	100

TABLE 1—BRAKE TEST PROCEDURE SEQUENCE AND REQUIREMENTS

No.	Sequence	Test Load		Test Procedure	Requirements
		Light	GVWR		
1.	Instrumentation check	—	—	S7.2	—
2.	First (preburnish) effectiveness test	—	x	S7.3	S5.1.1.1
3.	Burnish procedure	—	x	S7.4	—
4.	Second effectiveness	—	x	S7.5	S5.1.1.2
5.	First reburnish	—	x	S7.6	—
6.	Parking brake	x	x	S7.7	S5.2
7.	Third effectiveness (lightly loaded vehicle)	x	—	S7.8	S5.1.1.3
8.	Partial failure	x	x	S7.9	S5.1.2
9.	Inoperative brake power and power assist units	—	x	S7.10	S5.1.3
10.	First fade and recovery	—	x	S7.11	S5.1.4
11.	Second reburnish	—	x	S7.12	—
12.	Second fade and recovery	—	x	S7.13	S5.1.4
13.	Third reburnish	—	x	S7.14	—
14.	Fourth effectiveness	—	x	S7.15	S5.1.1.4
15.	Water recovery	—	x	S7.16	S5.1.5
16.	Spike stops	—	x	S7.17	S5.1.6
17.	Final inspection	—	—	S7.18	S5.6
18.	Moving barrier test	—	x	S7.19	S5.2.2.3

### S5.1.2 Partial failure.

**S5.1.2.1** In vehicles manufactured with a split service brake system, in the event of a rupture or leakage type of failure in a single subsystem, other than a structural failure of a housing that is common to two or more subsystems, the remaining portion(s) of the service brake system shall continue to operate and shall be capable of stopping a vehicle from 60 mph within the corresponding distance specified in Column IV of Table II.

**S5.1.2.2** In vehicles not manufactured with a split service brake system, in the event of any one rupture or leakage type of failure in any component of the service brake system the vehicle shall, by operation of the service brake control, be capable of stopping 10 times consecutively from 60 mph within the corresponding distance specified in Column IV of Table II.

**[S5.1.3 Inoperative brake power assist unit or brake power unit.** A vehicle equipped with one or more brake power assist units shall meet the requirements of either S5.1.3.1, S5.1.3.2, or S5.1.3.4 (chosen at the option of the manufacturer), and a vehicle equipped with one or more brake power units shall meet the requirements of either S5.1.3.1, S5.1.3.3, or S5.1.3.4 (chosen at the option

of the manufacturer). (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S5.1.3.1** The service brakes on a vehicle equipped with one or more brake power assist units or brake power units, with one such unit inoperative and depleted of all reserve capability, shall be capable of stopping a vehicle from 60 mph within the corresponding distance specified in Column IV of Table II.

**S5.1.3.2 Brake power assist units.** The service brakes on a vehicle equipped with one or more brake power assist units, with one such unit inoperative, shall be capable of stopping a vehicle from 60 mph—

(a) In six consecutive stops at an average deceleration for each stop that is not lower than that specified in Column I of Table III, when the inoperative unit is not initially depleted of all reserve capability; and

[(b) In a final stop, at an average deceleration that is not lower than 7 fpsps for passenger cars (equivalent stopping distance 554 feet) or 6 fpsps for vehicles other than passenger cars (equivalent stopping distance 646 feet), as applicable, when the inoperative unit is depleted of all reserve capac-

**TABLE II—STOPPING DISTANCES**

STOPPING DISTANCE IN FEET FOR TESTS INDICATED														
Vehicle test speed (miles per hour)	I				II			III				IV		
	1st (preburnish) and 4th effectiveness check				2d effectiveness			3d (lightly loaded vehicle) effectiveness				Inoperative brake power and power assist unit; partial failure		
	(a)	(b)	(c)	(d)	(a)	(b) and (c)	(d)	(a)	(b)	(c)	(d)	(a)	(b) and (c)	(d)
30 .....	<sup>1</sup> 57	<sup>1</sup> 65	<sup>1,2</sup> 69(1st) <sup>1,2</sup> 65(4th and spike) <sup>1</sup> 72	<sup>1</sup> 88	<sup>1</sup> 54	<sup>1</sup> 57	<sup>1</sup> 81	51	57	65	81	114	130	170
35 .....	74	83	91	132	70	74	132	67	74	83	132	155	176	225
40 .....	96	108	119	173	91	96	173	87	96	108	173	202	229	288
45 .....	121	137	150	218	115	121	218	110	121	137	218	257	291	358
50 .....	150	169	185	264	142	150	264	135	150	169	264	317	359	435
55 .....	181	204	224	326	172	181	326	163	181	204	326	383	433	530
60 .....	<sup>1</sup> 216	<sup>1</sup> 242	<sup>1</sup> 267	<sup>1</sup> 388	<sup>1</sup> 204	<sup>1</sup> 216	<sup>1</sup> 388	<sup>1</sup> 194	<sup>1</sup> 216	<sup>1</sup> 242	<sup>1</sup> 388	<sup>1</sup> 456	<sup>1</sup> 517	<sup>1</sup> 613
80 .....	<sup>1</sup> 405	<sup>1</sup> 459	<sup>1</sup> 510	NA	<sup>1</sup> 383	NA	NA	NA	NA	NA	NA	NA	NA	NA
95 .....	<sup>1</sup> 607	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
100 .....	<sup>1</sup> 673	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

<sup>1</sup> Distances for specified. <sup>2</sup> Applicable to school buses only. NA=Not applicable.

NOTE—(a) passenger cars; (b) vehicles other than passenger cars with GVWR of less than 8,000 lbs; (c) vehicles with GVWR of not less than 8,000 lbs. and not more than 10,000 lbs.; (d) vehicles with GVWR greater than 10,000 lbs. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)

**TABLE III—INOPERATIVE BRAKE POWER ASSIST AND BRAKE POWER UNITS**

Stop. No.	Average Deceleration, FPS <sup>2</sup>				Equivalent Stopping Distance, Feet			
	Column 1—brake power assist		Column 2—brake power unit		Column 3—brake power assist		Column 4—brake power unit	
	(a)	(b) and (c)	(a)	(b) and (c)	(a)	(b) and (c)	(a)	(b) and (c)
1 .....	16.0	14.0	16.0	13.0	242	277	242	298
2 .....	12.0	12.0	13.0	11.0	323	323	298	352
3 .....	10.0	10.0	12.0	10.0	388	388	323	388
4 .....	9.0	8.5	11.0	9.5	431	456	352	409
5 .....	8.0	7.5	10.0	9.0	484	517	388	431
6 .....	7.5	6.7	9.5	8.5	517	580	409	456
7 .....	<sup>1</sup> 7.0	<sup>1</sup> 6.0	9.0	8.0	554	646	431	484
8 .....	NA	NA	8.5	7.5	NA	NA	456	517
9 .....	NA	NA	8.0	7.0	NA	NA	484	554
10 .....	NA	NA	7.5	6.5	NA	NA	517	596
11 .....	NA	NA	<sup>1</sup> 7.0	<sup>1</sup> 6.0	NA	NA	554	646

<sup>1</sup> Depleted. (a) passenger cars; (b) vehicles other than passenger cars with GVWR of 10,000 lbs. or less; (c) vehicles with GVWR greater than 10,000 lbs.; NA=Not Applicable. (46 F.R. 55—January 29, 1981. Effective: 9/1/83)

ity. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S5.1.3.3 Brake power units.** The service brakes of a vehicle equipped with one or more brake power units with an accumulator-type reserve system, with any one failure in any one unit, shall be capable of stopping the vehicle from 60 mph:

(a) In 10 consecutive stops at an average deceleration for each stop that is not lower than that specified in Column II of Table III, when the unit is not initially depleted of all reserve capability; and

[(b) In a final stop, at an average deceleration that is not lower than 7 fpsps for passenger cars (equivalent stopping distance 554 feet) or 6 fpsps for vehicles other than passenger cars (equivalent stopping distance 646 feet), as applicable, when the inoperative unit is depleted of all reserve capacity. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S5.1.3.4 Brake power assist and brake power units.** The service brake of a vehicle equipped with one or more brake power assist units or brake power units with a backup system, with one brake power assist unit or brake power unit inoperative and depleted of all reserve capability and with only the backup system operating in the failed subsystem, shall be capable of stopping the vehicle from 60 mph in 15 consecutive stops at an average deceleration for each stop that is not lower than 12 fpsps (equivalent stopping distance 323 feet).

**S5.1.4 Fade and recovery.** The service brakes shall be capable of stopping each vehicle in two fade and recovery tests as specified below.

**S5.1.4.1** The control force used for the base line check stops or snubs shall be not less than 10 pounds, nor more than 60 pounds, except that the control force for a vehicle with a GVWR of 10,000 pounds or more may be between 10 pounds and 90 pounds.

**S5.1.4.2** (a) Each vehicle with GVWR of 10,000 pounds or less shall be capable of making five fade stops (10 fade stops on the second test) from 60 mph at a deceleration not lower than 15 fpsps for each stop, followed by five fade stops at the maximum deceleration attainable from 5 to 15 fpsps.

(b) Each vehicle with a GVWR greater than 10,000 pounds shall be capable of making 10 fade

snubs (20 fade snubs on the second test) from 40 mph to 20 mph at 10 fpsps for each snub.

**S5.1.4.3** (a) Each vehicle with a GVWR of 10,000 pounds or less shall be capable of making five recovery stops from 30 mph at ten fpsps for each stop, with a control force application that falls within the following maximum and minimum limits:

(1) A maximum for the first four recovery stops of 150 pounds, and for the fifth stop, of 20 pounds more than the average control force for the baseline check; and

(2) A minimum of—

(A) The average control force for the baseline check minus 10 pounds, or

(B) The average control force for the baseline check times 0.60,

whichever result is lower (but in no case lower than 5 pounds).

(b) Each vehicle with a GVWR of more than 10,000 pounds shall be capable of making five recovery snubs from 40 mph to 20 mph at 10 fpsps of each snub, with a control force application that falls within the following maximum and minimum limits:

(1) A maximum for the first four recovery snubs of 150 pounds, and for the fifth snub, of 20 pounds more than the average control force for the baseline check (but in no case more than 100 pounds); and

(2) A minimum of—

(A) The average control force for the baseline check minus 10 pounds, or

(B) The average control force for the baseline check times 0.60, whichever is lower (but in no case lower than 5 pounds).

**S5.1.5 Water recovery.** The service brakes shall be capable of stopping each vehicle in a water recovery test, as specified below.

**S5.1.5.1** The control force used for the baseline check stops or snubs shall be not less than 10 pounds, nor more than 60 pounds, except that the control force for a vehicle with a GVWR of 10,000 pounds or more may be between 10 and 90 pounds.

**S5.1.5.2** (a) After being driven for 2 minutes at a speed of 5 mph in any combination of forward and reverse directions through a trough having a water depth of 6 inches, each vehicle with a GVWR of 10,000 pounds or less shall be

capable of making five recovery stops from 30 mph at 10 fpsps for each stop with a control force application that falls within the following maximum and minimum limits:

(1) A maximum for the first four recovery stops of 150 pounds, and for the fifth stop, of 45 pounds more than the average control force for the baseline check (but in no case more than 90 pounds, except that the maximum control force for the fifth stop in the case of a vehicle manufactured before September 1, 1976, shall be not more than plus 60 pounds of the average control force for the baseline check) (but in no case more than 110 pounds).

(2) A minimum of—

(A) The average control force for the baseline check minus 10 pounds, or

(B) The average control force for the baseline check times 0.60,

whichever result is lower (but in no case lower than 5 pounds).

However, the maximum control force for the fifth stop in the case of a vehicle manufactured before September 1, 1976, shall be not more than plus 60 pounds of the average control force for the baseline check (but in no case more than 110 pounds).

(b) After being driven for 2 minutes at a speed of 5 mph in any combination of forward and reverse directions through a trough having a water depth of 6 inches, each vehicle with a GVWR of more than 10,000 pounds shall be capable of making five recovery stops from 30 mph at 10 fpsps for each stop with a control force application that falls within the following maximum and minimum limits:

(1) A maximum for the first four recovery stops of 150 pounds, and for the fifth stop, of 60 pounds more than the average control force for the baseline check (but in no case more than 110 pounds); and

(2) A minimum of—

(A) The average control force for the baseline check minus 10 pounds, or

(B) The average control force for the baseline check times 0.60, whichever is lower (but in no case lower than 5 pounds).

**[S5.1.6 Spike stops.** Each vehicle with a GVWR of 10,000 lbs. or less shall be capable of making 10 spike stops from 30 mph, followed by 6 effectiveness (check) stops from 60 mph, at least one of which shall be within a corresponding stopping distance specified in Column I of Table II. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S5.2 Parking brake system.** Each vehicle [with a GVWR of 10,000 lbs. or less and each school bus with a GVWR greater than 10,000 lbs.] shall be manufactured with a parking brake system of a friction type with a solely mechanical means to retain engagement, which shall under the conditions of S6, when tested according to the procedures specified in S7, meet the requirements specified in S5.2.1, S5.2.2, or S5.2.3 as appropriate, with the system engaged—

(a) In the case of a [vehicle with a GVWR of 10,000 lbs. or less] with a force applied to the control not to exceed 125 pounds for a foot-operated system and 90 pounds for a hand-operated system; and

(b) In the case of a school bus [with a GVWR greater than 10,000 lbs.] with a force applied to the control not to exceed 150 pounds for a foot-operated system and 125 pounds for a hand-operated system. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)

**S5.2.1** Except as provided in S5.2.2, the parking brake system on a [passenger car and on a school bus] with a GVWR of 10,000 pounds or less shall be capable of holding the vehicle stationary (to the limit of traction on the braked wheels) for 5 minutes in both a forward and reverse direction on a 30 percent grade. (46 F.R. 61887—December 21, 1981. Effective: 9/1/83)

**S5.2.2** A vehicle of a type described in S5.2.1 at the option of the manufacturer may meet the requirements of S5.2.2.1, S5.2.2.2, and S5.2.2.3 instead of the requirements of S5.2.1 if:

(a) The vehicle has a transmission or transmission control which incorporates a parking mechanism, and

(b) The parking mechanism must be engaged before the ignition key can be removed.

**S5.2.2.1** The vehicle's parking brake and parking mechanism, when both are engaged, shall be



capable of holding the vehicle stationary (to the limit of traction of the braked wheels) for 5 minutes, in both forward and reverse directions, on a 30 percent grade.

**S5.2.2.2** The vehicle's parking brake, with the parking mechanism not engaged, shall be capable of holding the vehicle stationary for 5 minutes, in both forward and reverse directions, on a 20 percent grade.

**S5.2.2.3** With the parking mechanism engaged and the parking brake not engaged, the parking mechanism shall not disengage or fracture in a manner permitting vehicle movement, when the vehicle is impacted at each end, on a level surface, by a barrier moving at 2½ mph.

**S5.2.3** The parking brake system on a [multipurpose passenger vehicle, truck, and bus (other than a school bus)] with a GVWR greater than 10,000 pounds shall be capable of holding the vehicle stationary for 5 minutes, in both forward and reverse directions, on a 20 percent grade. (46 F.R. 61887—December 21, 1981. Effective: 9/1/83)

**S5.3 Brake system indicator lamp.** Each vehicle shall have one or more brake system indicator lamps, mounted in front of and in clear view of the driver, which meet the requirements of S5.3.1 through S5.3.5. However, the options provided in S5.3.1(a) shall not apply to a vehicle manufactured without a split service brake system; such a vehicle shall, to meet the requirements of S5.3.1(a), be equipped with a warning indicator that activates under the conditions specified in S5.3.1(a) (4). This warning indicator shall, instead of meeting the requirements of S5.3.2 through S5.3.5, activate (while the vehicle remains capable of meeting the requirements of S5.1.2.2 and the ignition switch is in the "on" position) a continuous or intermittent audible signal and a flashing warning light, displaying the words "STOP—BRAKE FAILURE" in block capital letters not less than one-quarter of an inch in height.

**S5.3.1** An indicator lamp shall be activated when the ignition (start) switch is in the "on" ("run") position and whenever any of conditions (a), (c), or (d) occur, or, at the option of the manufacturer, whenever any of conditions (b), (c), or (d) occur:

(a) A gross loss of pressure (such as caused by rupture of a brake line but not by a structural failure of a housing that is common to two or more subsystems) due to one of the following conditions (chosen at the option of the manufacturer):

(1) Before or upon application of a differential pressure of not more than 225 lb/in<sup>2</sup> between the active and failed brake system measured at a master cylinder outlet or a slave cylinder outlet.

(2) Before or upon application of 50 pounds of control force upon a fully manual service brake.

(3) Before or upon application of 25 pounds of control force upon a service brake with a brake power assist unit.

(4) When the supply pressure in a brake power unit drops to a level not less than one-half of the normal system pressure.

(b) A drop in the level of brake fluid in any master cylinder reservoir compartment to less than the recommended safe level specified by the manufacturer or to one-fourth of the fluid capacity of the reservoir compartment, whichever is greater.

(c) A total functional electrical failure in an antilock or variable proportioning brake system.

(d) Application of the parking brake.

**S5.3.2** All indicator lamps shall be activated as a check of lamp function either when the ignition (start) switch is turned to the "on" ("run") position when the engine is not running, or when the ignition (start) switch is in a position between "on" ("run") and "start" that is designated by the manufacturer as a check position. However, in vehicles equipped with an automatic transmission, the activation as a check of lamp function is not required when the transmission shift level is in a forward or reverse drive position.

**S5.3.3** Each indicator lamp activated due to a condition specified in S5.3.1 shall remain activated as long as the condition exists, whenever the ignition (start) switch is in the "on" ("run") position, whether or not the engine is running.

**S5.3.4** When an indicator lamp is activated it may be steady burning or flashing.

**S5.3.5** Each indicator lamp shall have a lens labeled in letters not less than one-eighth inch high, which shall be legible to the driver in daylight when lighted. The lens and the letters shall have

contrasting colors, one of which is red. If a single common indicator is used, the lens shall be labeled "Brake." If separate indicator lamps are used for one or more of the various functions described in S5.3.1(a) to S5.3.1(d), the lens shall include the word "Brake" and appropriate additional labeling (use "Brake Pressure," "Brake Fluid" for S5.3.1(a) and S5.3.1(b)) except that if a separate parking indicator lamp is provided, the single word "Park" may be used. An antilock system may have a separate lens labeled "Antilock," in letters not less than one-eighth of an inch high, which shall be legible to the driver in daylight when lighted, if the indicator is used only for the antilock system. The lens and the letters shall have contrasting colors, one of which is yellow.

#### **S5.4 Reservoirs.**

**S5.4.1 Master cylinder reservoirs.** A master cylinder shall have a reservoir compartment for each service brake subsystem serviced by the master cylinder. Loss of fluid from one compartment shall not result in a complete loss of brake fluid from another compartment.

**S5.4.2 Reservoir capacity.** Reservoirs, whether for master cylinders or other type systems, shall have a total minimum capacity equivalent to the fluid displacement resulting when all the wheel cylinders or caliper pistons serviced by the reservoirs move from a new lining, fully retracted position (as adjusted initially to the manufacturer's recommended setting) to a fully worn, fully applied position, as determined in accordance with S7.18(c) of this standard. Reservoirs shall have completely separate compartments for each subsystem except that in reservoir systems utilizing a portion of the reservoir for a common supply to two or more subsystems, individual partial compartments shall each have a minimum volume of fluid equal to at least the volume displaced by the master cylinder piston servicing the subsystem, during a full stroke of the piston. Each brake power unit reservoir servicing only the brake system shall have a minimum capacity equivalent to the fluid displacement required to charge the system piston(s) or accumulator(s) to normal operating pressure plus the displacement resulting when all the wheel cylinders or caliper pistons serviced by the reservoir or accumulator(s) move from a new lining fully retracted position (as ad-

justed initially to the manufacturer's recommended setting) to a fully worn, fully applied position.

**S5.4.3 Reservoir labeling.** Each vehicle shall have a brake fluid warning statement that reads as follows, in letters at least  $\frac{1}{8}$  of an inch high: "WARNING, Clean filler cap before removing."

Use only \_\_\_\_\_ fluid from a sealed container." (Inserting the recommended type of brake fluid as specified in 49 CFR § 571.116, e.g., "DOT 3".) The lettering shall be—

(a) Permanently affixed, engraved, or embossed;

(b) Located so as to be visible by direct view, either on or within 4 inches of the brake fluid reservoir filler plug or cap; and

(c) Of a color that contrasts with its background, if it is not engraved or embossed.

**S5.5 Antilock and variable proportioning brake systems.** In the event of failure (structural or functional) in an antilock or variable proportioning brake system the vehicle shall be capable of meeting the stopping distance requirements specified in S5.1.2 for service brake system partial failure.

**S5.6 Brake system integrity.** Each vehicle shall be capable of completing all performance requirements of S5 without—

(a) Detachment or fracture of any component of the braking system, such as brake springs and brake shoe or disc pad facing, other than minor cracks that do not impair attachment of the friction facing. All mechanical components of the braking system shall be intact and functional. Friction facing tearout (complete detachment of lining) shall not exceed 10 percent of the lining on any single frictional element.

(b) Any visible brake fluid or lubricant on the friction surface of the brake, or leakage at the master cylinder or brake power unit reservoir cover, seal, and filler openings.

**S6. Test conditions.** The performance requirements of S5 shall be met under the following conditions. Where a range of conditions is specified, the vehicle shall be capable of meeting the requirements at all points within the range.

## **S6.1 Vehicle weight.**

**S6.1.1** Other than tests specified at lightly loaded vehicle weight in S7.7, S7.8, and S7.9, the vehicle is loaded to its GVWR such that the weight on each axle as measured at the tireground interface is in proportion to its GAWR, except that [each] fuel tank is filled to any level from 100 percent of capacity (corresponding to full GVWR loading) to 75 percent. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)

However, if the weight on any axle of a vehicle at lightly loaded vehicle weight exceeds the axle's proportional share of the gross vehicle weight rating, the load required to reach GVWR is placed so that the weight on that axle remains the same as at lightly loaded vehicle weight.

**S6.1.2** For the applicable tests specified in S7.7, S7.8, and S7.9, vehicle weight is lightly loaded vehicle weight, with the added weight distributed in the front passenger seat area in passenger cars [multipurpose vehicles and trucks] and in the area adjacent to the driver's seat in buses. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)

## **S6.2 Test loads.** Reserved.

**S6.3 Tire inflation pressure.** Tire inflation pressure is the pressure recommended by the vehicle manufacturer for the GVWR of the vehicle.

**S6.4 Transmission selector control.** For S7.3, S7.5, S7.8, S7.15, S7.17, S7.11.1.2, S7.11.2.2, S7.11.3.2, and as required for S7.13, the transmission selector control is in neutral for all decelerations. For all other tests during all decelerations, the transmission selector is in the control position, other than overdrive, recommended by the manufacturer for driving on a level surface at the applicable test speed. To avoid engine stall during tests required to be run in gear a manual transmission may be shifted to neutral (or the clutch disengaged) when the vehicle speed decreases to 20 mph.

**S6.5 Engine.** Engine idle speed and ignition timing settings are according to the manufacturer's recommendations. If the vehicle is equipped with an adjustable engine speed governor, it is adjusted according to the manufacturer's recommendation.

**S6.6 Vehicle openings.** All vehicle openings (doors, windows, hood, trunk, convertible top, cargo doors, etc.) are closed except as required for instrumentation purposes.

**S6.7 Ambient temperature.** The ambient temperature is any temperature between 32° F. and 100° F.

**S6.8 Wind velocity.** The wind velocity is zero.

**S6.9 Road surface.** Road tests are conducted on a 12-foot-wide, level roadway having a skid number of 81. Burnish stops are conducted on any surface. The parking brake test surface is clean, dry smooth Portland cement concrete.

**S6.10 Vehicle position.** The vehicle is aligned in the center of the roadway at the start of each brake application. Stops, other than spike stops, are made without any part of the vehicle leaving the roadway. Except as noted below, stops are made without lockup of any wheel at speeds greater than 10 mph. There may be controlled lockup on an antilock-equipped axle, and lockup of not more than one wheel per vehicle, uncontrolled by an antilock system. [Dual wheels on one side of an axle are considered a single wheel.] Locked wheels at speeds greater than 10 mph are allowed during spike stops (but not spike check stops), partial failure stops, and inoperative brake power or power assist unit stops. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)

**S6.11 Thermocouples.** The brake temperature is measured by plug-type thermocouples installed in the approximate center of the facing length and width of the most heavily loaded shoe or disc pad, one per brake, as shown in Figure 1. A second thermocouple may be installed at the beginning of the test sequence if the lining wear is expected to reach a point causing the first thermocouple to contact the metal rubbing surface of a drum or rotor. For center-grooved shoes or pads, thermocouples are installed within one-eighth of an inch to one-quarter inch of the groove and as close to the center as possible.

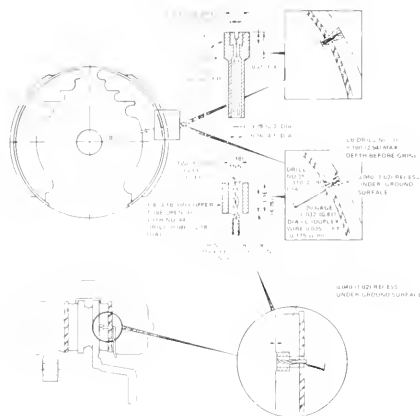


FIGURE 1. TYPICAL PLUG THERMOCOUPLE INSTALLATIONS

Note: The second thermocouple shall be installed at .080 inch depth within 1 inch circumferentially of the thermocouple installed at .040 inch depth.

**S6.12 Initial brake temperature.** Unless otherwise specified, the brake temperature is 150° F to 200° F.

**S6.13 Control forces.** Unless otherwise specified, the force applied to a brake control is not less than 15 pounds and not more than 150 pounds.

**S7. Test procedures and sequence.** Each vehicle shall be capable of meeting all the [applicable] requirements of S5 when testing according to the procedures and in the sequence set forth below, without replacing any brake system part or making any adjustments to the brake system other than as permitted in burnish and reburnish procedures and in S7.9 and S7.10. [For vehicles only having to meet the requirements of S5.1.2 and S5.1.3 in section S5.1, the applicable test procedures and sequence are S7.1, S7.2, S7.4, S7.9, S7.10, and S7.18.] Automatic adjusters may be locked out, according to the manufacturer's recommendation, when the vehicle is prepared for testing. If this option is selected, adjusters must remain locked out for entire sequence of tests. A vehicle shall be deemed to comply with the stopping distance requirements of S5.1 if at least one of the stops at each speed and load specified in each of S7.3, S7.5, S7.8, S7.9, S7.10, S7.15, or S7.17

(check stops) is made within a stopping distance that does not exceed the corresponding distance specified in Table II. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

When the transmission selector control is required to be in neutral for a deceleration, a stop or snub shall be obtained by the following procedures: (1) Exceed the test speed by 4 to 8 mph; (2) close the throttle and coast in gear to approximately 2 mph above the test speed; (3) shift to neutral; and (4) when the test speed is reached, apply the service brakes.

**S7.1 Brake warming.** If the initial brake temperature for the first stop in a test procedure (other than S7.7 and S7.16) has not been reached, heat the brakes to the initial brake temperature by making not more than 10 snubs from not more than 40 mph to 10 mph, at a deceleration not greater than 10 fpsps.

**S7.2 Pretest instrumentation check.** Conduct a general check of instrumentation by making not more than 10 stops from a speed of not more than 30 mph, or 10 snubs from a speed of not more than 40 mph to 10 mph, at a deceleration of not more than 10 fpsps. If instrument repair, replacement, or adjustment is necessary, make not more than 10 additional stops or snubs after such repair, replacement, or adjustment.

**S7.3 Service brake system—first (reburnish) effectiveness test.** Make six stops from 30 mph. Then make six stops from 60 mph.

**S7.4 Service brake system—burnish procedure.**

**S7.4.1 Vehicles with GVWR of 10,000 pounds or less.**

**S7.4.1.1 Burnish.** Burnish the brakes by making 200 stops from 40 mph at 12 fpsps (the 150 pound control force limit does not apply here). The interval from the start of one service brake application to the start of the next shall be either the time necessary to reduce the initial brake temperature to between 230° F and 270° F, or the distance of 1 mile, whichever occurs first. Accelerate to 40 mph after each stop and maintain that speed until making the next stop.

#### S7.4.1.2 Brake adjustment—post burnish.

After burnishing, adjust the brakes manually in accordance with the manufacturer's recommendation if the brake systems are manual or if the automatic adjusters are locked out, or by making stops as recommended by the manufacturer if the automatic adjusters are operative.

#### S7.4.2 Vehicles with GVWR greater than 10,000 pounds.

**S7.4.2.1 Burnish.** Burnish the brakes by making 500 snubs at 10 fpsps in the sequence specified in Table IV and within the speed ranges indicated. After each brake application accelerate to the next speed specified and maintain that speed until making the next brake application at a point 1 mile from the initial point of the previous brake application. If a vehicle cannot attain any speed specified in 1 mile, continue to accelerate until the speed specified is reached or until a point 1.5 miles from the initial point of the previous brake application is reached, whichever occurs first. If during any of the brake applications specified in Table IV the hottest brake reaches 500° F, make the remainder of the 500 applications from that snub condition, except that a higher or lower snub condition shall be followed (up to the 60 mph initial speed) as necessary to maintain a temperature of 500° F  $\pm$  50° F.

TABLE IV

Series	Snubs	Snub conditions (highest speed indicated)
1	175	40 to 20 mph
2	25	45 to 20 mph
3	25	50 to 20 mph
4	25	55 to 20 mph
5	250	60 to 20 mph

#### S7.4.2.2 Brake adjustment—post burnish.

After burnishing, adjust the brakes manually in accordance with the manufacturer's recommendation if the brake systems are manual or if the automatic adjusters are locked out, or by making stops as recommended by the manufacturer if the automatic adjusters are operative.

**S7.5 Service brake system—second effectiveness test.** Repeat S7.3. Then (for passenger cars) [and other vehicles with a GVWR of 10,000 lbs. or less] make four stops from 80 mph if the speed attainable in 2 miles is not less than 84 mph. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S7.6 First reburnish.** Repeat S7.4, except make 35 burnish stops or snubs. Reburnish a vehicle whose brakes are burnished according to S7.4.2.1 by making 35 snubs from 60 mph to 20 mph, but if the hottest brake reaches 500° F  $\pm$  50° F make the remainder of the 35 applications from such initial speed divisible by five but less than 60 mph as necessary to maintain a temperature of 500° F  $\pm$  50° F.

**S7.7 Parking brake test.** The parking brake tests for any vehicle on different grades, in different directions, and for different loads may be conducted in any order. The force required for actuation of a hand-operated brake system shall be measured at the center of the hand grip area or at a distance of 1½ inches from the end of the actuation lever, as illustrated in Figure 2.

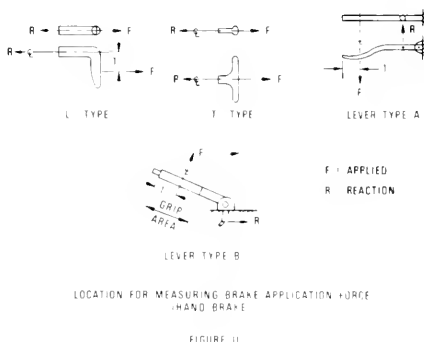


FIGURE 2

#### S7.7 Test procedure for requirements of S5.2.1.

**S7.7.1** Condition the parking brake friction elements so that the temperature at the beginning of the test is at any level not more than 150° F

(when the temperature of components on both ends of an axle are averaged).

**S7.7.1.2** Drive the vehicle, loaded to GVWR, onto the specified grade with the longitudinal axis of the vehicle in the direction of the slope of the grade, stop the vehicle and hold it stationary by application of the service brake control, and place the transmission in neutral.

**S7.7.1.3** With the vehicle held stationary by means of the service brake control, apply the parking brake by a single application of the force specified in (a) or (b), except that a series of applications to achieve the specified force may be made in the case of a parking brake system design that does not allow the application of the specified force in a single application:

[(a) In the case of a passenger car or other vehicle with a GVWR of 10,000 lbs. or less, not more than 125 pounds for a foot-operated system, and not more than 90 pounds for a hand-operated system; and

(b) In the case of a school bus with a GVWR greater than 10,000 lbs. not more than 150 pounds for a foot-operated system, and not more than 125 pounds for a hand-operated system. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S7.7.1.4** Following the application of the parking brake in accordance with S7.7.1.3, release all force on the service brake control and commence the measurement of time if the vehicle remains stationary. If the vehicle does not remain stationary, reapplication of the service brake to hold the vehicle stationary, with reapplication of a force to the parking brake control at the level specified in S7.6.1.3(a) or (b) as appropriate for the vehicle being tested (without release of the ratcheting or other holding mechanism of the parking brake) may be used twice to attain a stationary position.

**S7.7.1.5** Following observation of the vehicle in a stationary condition for the specified time in one direction, repeat the same test procedure with the vehicle orientation in the opposite direction on the specified grade.

**S7.7.1.6** Check the operation of the parking brake application indicator required by S5.3.1(d).

**S7.7.2 Test procedures for requirements of S5.2.2.** (a) Check that transmission must be placed in park position to release key;

(b) Test as in S7.7.1, except in addition place the transmission control to engage the parking mechanism; and

(c) Test as in S7.7.1 except on a 20 percent grade, with the parking mechanism not engaged.

**S7.7.3 Lightly loaded vehicle.** Repeat S7.7.1 or S7.7.2 as applicable except with the vehicle at lightly loaded vehicle weight.

**S7.7.4 Non-service brake type parking brake systems.** For vehicles with parking brake systems not utilizing the service brake friction elements, burnish the friction elements of such systems prior to parking brake tests according to the manufacturer's published recommendations as furnished to the purchaser. If no recommendations are furnished, run the vehicle in an unburnished condition.

**S7.8 Service brake system—lightly loaded vehicle (third effectiveness) test.** Make six stops from 60 mph with vehicle at lightly loaded vehicle weight. [This test is not applicable to a vehicle which both has a GVWR of not less than 8,000 pounds and not greater than 10,000 pounds and is not a school bus. (46 F.R. 55—January 2, 1981. Effective: 9/1/83)]

**S7.9 Service brake system test—partial failure.**

**S7.9.1** With the vehicle at lightly loaded vehicle weight, alter the service brake system to produce any one rupture or leakage type of failure, other than a structural failure of a housing that is common to two or more subsystems. Determine the control force, pressure level, or fluid level (as appropriate for the indicator being tested) necessary to activate the brake system indicator lamp. Make 4 stops if the vehicle is equipped with a split service brake system, or 10 stops if the vehicle is not so equipped, each from 60 mph, by a continuous application of the service brake control. Restore the service brake system to normal at completion of this test.

**S7.9.2** Repeat S7.9.1 for each of the other subsystems.

**S7.9.3** Repeat S7.9.1 and S7.9.2 with vehicle at GVWR. Restore the service brake system to normal at completion of this test.

**S7.9.4** (For vehicles with antilock and/or variable proportioning brake systems.) With vehicle at GVWR, disconnect functional power source, or otherwise render antilock system inoperative. Disconnect variable proportioning brake system. Make four stops, each from 60 mph. If more than one antilock or variable proportioning brake subsystem is provided, disconnect or render one subsystem inoperative and run as above. Restore system to normal at completion of this test. Repeat for each subsystem provided. Determine whether the brake system indicator lamp is activated when the electrical power source to the antilock or variable proportioning unit is disconnected.

**S7.10 Service brake system—inoperative brake power unit or brake power assist unit test.** (For vehicles equipped with brake power unit or brake power assist unit.)

**S7.10.1 Regular procedure.** (This test need not be run if the option in S7.10.2 is selected.) On vehicles with brake power assist units, render the brake power assist unit inoperative, or one of the brake power assist unit subsystems if two or more subsystems are provided by disconnecting the relevant power supply. Exhaust any residual brake power reserve capability of the disconnected system. On vehicles with brake power units, disconnect the primary source of power. Make four stops, each from 60 mph, by a continuous application of the service brake control. Restore the system to normal at completion of this test. For vehicles equipped with more than one brake power unit or brake power assist unit, conduct tests for each in turn.

**S7.10.2 Optional procedures—passenger cars only.** On vehicles with brake power assist units, the unit is charged to maximum prior to start of

test. (Engine may be run up in speed, then throttle closed quickly to attain maximum charge on vacuum assist units.) Brake power units shall also be charged to maximum accumulator pressure prior to start of test. No recharging is allowed after start of test.

(a) (For vehicles with brake power assist units.)

Disconnect the primary source of power. Make six stops each from 60 mph, to achieve the average deceleration for each stop as specified in Table III. Apply the brake control as quickly as possible. Maintain control force until vehicle has stopped.

At the completion of the stops specified above, deplete the system of any residual brake power reserve capability. Make one stop from 60 mph at an average deceleration of not lower than 7 fpsps for passenger cars (equivalent stopping distance 554 feet), or 6 fpsps for vehicles other than passenger cars (equivalent stopping distance 646 feet) and determine whether the control force exceeds 150 pounds.

(b) (For vehicles with brake power units with accumulator type systems.) Test as in S7.10.2(a), except make 10 stops instead of 6 and, at the completion of the 10 stops, deplete the failed element of the brake power unit of any residual brake power reserve capability before making the final stop.

(c) (For vehicles with brake power assist or brake power units with backup systems.) If the brake power or brake power assist unit operates in conjunction with a backup system and the backup system is activated automatically in the event of a primary power failure, the backup system is operative during this test. Disconnect the primary source of power of one subsystem. Make 15 stops, each from 60 mph, with the backup system activated for the failed subsystem, to achieve an average deceleration of 12 fpsps for each stop.

(d) Restore systems to normal at completion of these tests. For vehicles equipped with more than one brake power assist or brake power unit, conduct tests of each in turn.

**S7.11 Service brake system—first fade and recovery test.**

**S7.11.1 Baseline check stops or snubs.**

**S7.11.1.1 Vehicles with GVWR of 10,000 pounds or less.** Make three stops from 30 mph at 10 fpsps for each stop. Control force readings may be terminated when vehicle speed falls to 5 mph. Average the maximum brake control force required for the three stops.

**S7.11.1.2 Vehicles with GVWR greater than 10,000 pounds.** With transmission in neutral (or declutched), make three snubs from 40 to 20 mph at 10 fpsps for each snub. Average the maximum brake control force required for the three snubs.

**S7.11.2 Fade stops or snubs.**

**S7.11.2.1 Vehicles with GVWR of 10,000 pounds or less.** Make 5 stops from 60 mph at 15 fpsps followed by 5 stops at the maximum attainable deceleration between 5 and 15 fpsps for each stop. Establish an initial brake temperature before the first brake application of 130° F to 150° F. Initial brake temperatures before brake applications for subsequent stops are those occurring at the distance intervals. Attain the required deceleration within 1 second and, as a minimum, maintain it for the remainder of the stopping time. Control force readings may be terminated when vehicle speed falls to 5 mph. Leave an interval of 0.4 mile between the start of brake applications. Accelerate immediately to the initial test speed after each stop. Drive 1 mile at 30 mph after the last fade stop, and immediately follow the recovery procedure specified in S7.11.3.1.

**S7.11.2.2 Vehicles with GVWR greater than 10,000 pounds.** With transmission in neutral (or declutched), make 10 snubs from 40 to 20 mph at 10 fpsps for each snub. Establish an initial brake temperature before the first brake application of 130° F to 150° F. Initial brake temperatures before brake application for subsequent snubs are those occurring in the time intervals specified below. Attain the required deceleration within 1 second and maintain it for the remainder of the snubbing time. Leave an

interval of 30 seconds between snubs (start of brake application to start of brake application). Accelerate immediately to the initial test speed after each snub. Drive for 1.5 miles at 40 mph after the last snub and immediately follow the recovery procedure specified in S7.11.3.2.

**S7.11.3 Recovery stops or snubs.**

**S7.11.3.1 Vehicles with GVWR of 10,000 pounds or less.** Make five stops from 30 mph at 10 fpsps for each stop. Control force readings may be terminated when vehicle speed falls to 5 mph. Allow a braking distance interval of 1 mile. Immediately after each stop accelerate at maximum rate to 30 mph and maintain that speed until making the next stop. Record the maximum control force for each stop.

**S7.11.3.2 Vehicles with GVWR greater than 10,000 pounds.** With transmission in neutral (or declutched), make five snubs from 40 to 20 mph at 10 fpsps, for each snub. After each snub, accelerate at maximum rate to 40 mph and maintain that speed until making the next brake application at a point 1.5 miles from the point of the previous brake application. Record the maximum control force for each snub.

**S7.12 Service brake system—second reburnish.** Repeat S7.6.

**S7.13 Service brake system—second fade and recovery test.** Repeat S7.11 except in S7.11.2 run 15 fade stops or 20 snubs instead of 10.

**S7.14 Third reburnish.** Repeat S7.6.

**S7.15 Service brake system—fourth effectiveness test.** Repeat S7.5. Then (for passenger cars) make four stops from either 95 mph if the speed attainable in 2 miles is 99 to (but not including) 104 mph, or 100 mph if the speed attainable in 2 miles is 104 mph or greater.

**S7.16 Service brake system—water recovery test.**

**S7.16.1 Baseline check stop.** Make three stops from 30 mph at 10 fpsps for each stop. Control force readings may be terminated when vehicle speed falls to 5 mph. Average the maximum brake control force required for the three stops.



**S7.16.2 Wet brake recovery stops.** With the brakes fully released at all times, drive the vehicle for 2 minutes at a speed of 5 mph, in any combination of forward and reverse directions, through a trough having a water depth of 6 inches. After leaving the trough, immediately accelerate at maximum rate to 30 mph without a brake application. Immediately upon reaching that speed make five stops, each from 30 mph at 10 fpsps for each stop. After each stop (except the last), accelerate the vehicle immediately at a maximum rate to a speed of 30 mph and begin the next stop.

**S7.17 Spike stops.** Make 10 successive spike stops from 30 mph with the transmission in neutral, with no reverse stops. Make spike stops by applying a control force of 200 pounds while recording control force versus time. Maintain control force until vehicle has stopped. At completion of 10 spike stops, make 6 effectiveness stops from 60 mph.

**S7.18 Final inspection.** Inspect—

(a) The service brake system for detachment or fracture of any components, such as brake springs and brake shoes or disc pad facing.

(b) The friction surface of the brake, the master cylinder or brake power unit reservoir cover, and seal and filler openings, for leakage of brake fluid or lubricant.

(c) The master cylinder or brake power unit reservoir for compliance with the volume and labeling requirements of S5.4.2 and S5.4.3. In determining the fully applied worn condition assume that the lining is worn to (1) rivet or bolt heads on riveted or bolted linings or (2) within  $\frac{1}{32}$  inch of shoe or pad mounting surface or bonded linings, or (3) the limit recommended by the manufacturer, whichever is larger relative to the total possible shoe or pad movement. Drums or rotors are assumed to be at nominal design drum diameter or rotor thickness. Linings are assumed adjusted for normal operating clearance in the released position.

(d) The brake system indicator light(s), for compliance with operation in various key positions, lens color, labeling, and location, in accordance with S5.3.

**S7.19 Moving barrier test.** (Only for vehicles that have been tested according to S7.7.2.) Load the vehicle to GVWR, release parking brake and place the transmission selector control to engage the parking mechanism. With a moving barrier as described in paragraph 3.3 of SAE Recommended Practice J972 "Moving Barrier Collision Tests," November 1966, impact the vehicle from the front at  $2\frac{1}{2}$  mph. Keep the longitudinal axis of the barrier parallel with the longitudinal axis of the vehicle. Repeat the test, impacting the vehicle from the rear. Note: The vehicle used for this test need not be the same vehicle that has been used for the braking tests.



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106

## Brake Hoses

(Docket No. 1-5; Notice 8)

This notice amends 49 CFR 571.106, Motor Vehicle Safety Standard 106, *Hydraulic Brake Hoses*, by (1) extending its requirements to all motor vehicles and hydraulic, air, and vacuum brake hose, brake hose assemblies, and brake hose end fittings for use in those vehicles, (2) replacing some design-oriented requirements with performance requirements for brake hose, brake hose assemblies, and brake hose end fittings, and (3) establishing comprehensive labeling requirements for brake hose, brake hose assemblies, and brake hose end fittings.

A notice of proposed rulemaking on this subject was published on March 30, 1971 (36 F.R. 5855). It revised and corrected earlier proposed amendments and proposed the elimination of many design specifications in favor of broad performance requirements. This reorientation generated little comment, but extensive comments were received on the details of the proposed requirements.

Tests conducted by the NHTSA Safety Systems Laboratory and comments to the docket both indicated that the extensive sequential testing proposed in the NPRM could be an unpredictable measure of brake hose performance and much sequential testing was eliminated. One of the remaining sequential tests requires that all hose assemblies meet the constriction test as well as any other single test.

Several comments indicated confusion concerning the rule's applicability to components of the brake system. The definition of brake hose now limits the standard to flexible conduits that transmit or contain the fluid pressure or vacuum used to apply force to a vehicle's brakes. This excludes such hose as that from the brake fluid reservoir to the master cylinder, and that from

the air compressor discharge to its reservoir. Chassis plumbing which is flexible falls within the definition of brake hose, as does hose from the engine to the vacuum booster.

In response to continued requests for physical tolerances and related accommodations for testing, it is reiterated that the safety standards should in all cases be considered as performance levels that each vehicle or item of equipment must meet, and not as instructions for manufacturer testing. Thus, a 35-hour continuous flex test procedure sets the minimum performance level that the hose must meet when the NHTSA tests for compliance. The manufacturer may certify this performance level on the basis of interrupted tests as long as, in the exercise of due care, these tests provide assurance that his hose complies and will withstand 35 hours of continuous flexing. In response to another question, the manufacturer must determine for himself how frequently he should test his products to ensure that they comply.

The standard does not establish varying burst strength requirements for different size hose, because all sizes may be subject to extreme pressure conditions. Neither does the standard remove wire-braided air brake hose from the adhesion requirements as requested, because the NHTSA has concluded that properly embedded wire-braided hose will sustain an 8-pound pull, and that no sufficient data exists to exempt wire-braided hose at this time.

Labeling requirements have been modified in response to comments to permit (1) lettering to fit smaller size hoses, (2) antitorque stripes that are "clearly identifiable" in order to accommodate a molding process as well as color-stripping, (3) use of fractions to express the hose inside

diameter, and (4) interruption of the second stripe with optional additional information not permitted in the legend that interrupts the first stripe. In this way, the labeling provision requires certain safety-related information expressed in a specified format, and it also permits labeling with additional information by the manufacturer at his option. For example, several comments suggested the use of "air-brake" in lieu of "A" and inclusion of SAE air brake-hose type designations as a part of labeling air brake components. Another comment requested metric labeling. As modified, the standard now permits all this information to be placed on the hose as additional information.

Labeling requirements for brake hose end fitting manufacturers no longer include the assembly completion date. Instead, the assembler is required to place a band on each hose assembly which indicates the assembly completion date. "Brake hose assembly" has been redefined to exclude assemblies containing used components, and this effectively excludes repair operations from the requirements of the standard.

The amendment has been reorganized to clearly indicate that it applies to three types of hose, hose assemblies, and end fittings. The requirements and test procedures for each type of hose have been grouped together for clarity, in response to docket comments.

Changes to the hydraulic brake hose requirements include revision of many sequential tests. The 1,500 psi air pressure resistance test was eliminated as an inappropriate measure of hydraulic brake hose performance. The water absorption test proposed in the NPRM was divided into three distinct tests. The test temperature in the brake fluid compatibility test has been lowered to more accurately reflect vehicle operating conditions and to approach a more suitable test temperature for the specified procedure.

Few changes were made to the vacuum brake hose section. In response to the request of its manufacturers,  $\frac{3}{32}$ -inch hose has been added to the performance requirements data. Distinctions between light and heavy duty hose were largely eliminated.

All sequential testing except for the constriction test and one water absorption-tensile strength test has been eliminated from the air brake hose requirements. Comments indicated that the extensive combination of tests was inappropriate to measure the adequacy of traditionally constructed air brake hose. The ultraviolet test has been eliminated until sufficient data is generated to support a minimum performance requirement. The standard has also been modified to allow use of permanent as well as reusable end fittings. As anticipated in the NPRM, outside and inside diameter specifications have been added to the requirements for two types of air brake hose, although these specifications do not require the use of Standard SAE 100R5 fittings as proposed in the NPRM.

The suggested standardization on 100R5 fittings generated the greatest number of comments on the rulemaking. Comments generally agreed that thread engagement and component attachment should be standardized. However, disagreement exists on which fitting is most suitable for standardization. Many comments indicated that type E fittings are predominant in the industry and will be more so in the future and that their non-proprietary design permits manufacture by anyone. The NHTSA has decided, on the basis of the comments received, not to standardize on any type of fitting at this time. This amendment only establishes hose diameters and tolerances intended for use in reusable air brake hose assemblies as a first step toward standardization of the air brake hose assembly. Notice and further opportunity to comment will precede any rulemaking on the standardization of air brake hose assemblies.

In consideration of the foregoing, Standard No. 106, *Brake Hoses*, 49 CFR Part 571.106, is amended to read as set forth below.

Effective date: September 1, 1974.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on November 5, 1973.

James B. Gregory  
Administrator

**38 F.R. 31302**  
**November 13, 1973**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106****Brake Hoses****(Docket No. 1-5; Notice 9)**

This notice amends Standard No. 106, *Brake hoses*, 49 CFR 571.106, to require a manufacturer designation in place of the manufacturer identification code assigned by the National Highway Traffic Safety Administration (NHTSA) which is presently required by the labeling provision.

The NHTSA has not completed consideration of comments to its manufacturer's identification code proposal published June 7, 1973 (38 F.R. 14968). General Motors has stated that production of 1975 model vehicles that conform to Standard 106 will require the immediate manufacture of brake hose that conforms to Standard 106. This amendment modifies the identification requirements to permit the use of manufacturer designations, such as those presently in use, until the NHTSA issues a final rule on the manufacturer's identification code proposal. At that time the standard would be amended again to require whatever code might be assigned by the NHTSA.

Other matters raised by petitions for reconsideration are presently under consideration and

will be answered in accordance with the procedures of 49 CFR 553.35, *Petitions for reconsideration*.

In consideration of the foregoing, Standard 106 (49 CFR 571.106) is amended . . . .

*Effective date:* January 29, 1974. Because this amendment creates no additional burden, and because of the immediate need for an effective requirement applicable to equipment to be produced for the 1975 model year, it is found for good cause shown that notice and public procedure thereon are impracticable, and that an immediate effective date is in the public interest.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on January 23, 1974.

James B. Gregory  
Administrator

**39 F.R. 3680**  
**January 29, 1974**



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74

### Brake Hoses

(Docket No. 1-5; Notice 10)

This notice responds to petitions for reconsideration of amended Standard 106, *Brake hoses*, 49 CFR 571.106, published November 13, 1973 (38 F.R. 31302). In response to comments by 36 manufacturers and users of brake hoses, the National Highway Traffic Safety Administration (NHTSA) amends the definitions, labeling, and performance provisions of the standard in several respects.

The Motor Vehicle Manufacturers Association, the American Trucking Association, and three manufacturers questioned the applicability of the standard to nylon and thermoplastic tubing used in the chassis plumbing of air brake systems. They asserted that Notice 7 offered no opportunity for comment on the properties and use of this material and that no safety need could justify its inclusion in the standard. The comments point to a distinction in industry terminology between "tubing" and "hose" to argue that NHTSA use of the term "hose" limited the proposal to traditional applications of six SAE hose types at articulating points in the air brake system.

The NHTSA considers that the broad definition of "Airbrake hose" provided an opportunity to comment on the issue of tubing. Notice 7 defined "Airbrake hose" as "a flexible hose for use in an airbrake system . . ." and it clarified this definition in the preamble to the notice.

Major revisions have been made in the airbrake hose portion of the proposal by eliminating the six types previously specified. Thus an airbrake hose under the proposal may be manufactured from any material as long as the hose can meet the performance requirements of the standard.

The NHTSA included "flexible" in its definition of hose, despite the common meaning of hose as

flexible pipe or tubing, to emphasize the exclusion of relatively inflexible elements of an airbrake system such as copper tubing commonly found in chassis tubing. Finally, the broad term "air brake system" adequately gives notice of the standard's applicability to the chassis plumbing portion of that system. The NHTSA determined that a safety need exists to include flexible chassis plumbing in this standard because it is used in the same environment as hose located at articulating points and is subject to many of the same types of stress, including heat, cold, and pressure. A failure of either flexible conduit creates as great a safety hazard. For these reasons, the petitions that tubing be excluded from the standard are denied.

Manufacturers who commented on the use of nylon and thermoplastic in air brake systems expressed confidence that their products, which are in widespread use as chassis plumbing, will meet the requirements of the standard. They requested testing to exclude inadequate materials which might also meet the present requirements. The NHTSA expects to propose additional requirements after review and testing demonstrate that traditional hose materials presently in use will not be excluded arbitrarily. In the interim, the NHTSA's safety defect authority can prevent the use of inadequate materials.

To accommodate the inclusion of nylon and thermoplastic, the comments also requested a revision of the tensile strength value for the smaller nylon and thermoplastic hose. This change has been made. It should be stressed that the applicability of this standard to nylon and thermoplastic tubing does not affect tubing construction or characteristics.

"Brake hose" is defined in the final rule as "a flexible conduit that transmits or contains the fluid pressure or vacuum used to apply force to a vehicle's brakes." Wagner Electric and several other manufacturers argued that a definition like this which differs from accepted industry terminology should include a list of the parts of the brake system it covers. Actually, the use of general language different from industry terminology is specifically intended to avoid identification with specific designs and thereby permit the definition to accommodate future designs as they develop. The preamble refers to specific lines only in response to manufacturer requests for interpretations, and the NHTSA will continue to provide interpretations to interested persons upon request. The NHTSA interprets the term "flexible" to exclude copper or steel tubing. In response to Chrysler, General Motors, Ford, and Mercedes-Benz, the NHTSA reiterates that the vacuum and hydraulic booster lines that service power brake systems transmit or contain pressure used to apply force to a vehicle's brakes within the meaning of the definition. Accessory air lines such as those to the power air horn and windshield wipers are, of course, excluded.

The definition of "brake hose assembly" in the rule covered both combinations of clamps and hose and combinations of end fittings and hose. The NHTSA has deleted reference to clamps, in agreement with manufacturers who pointed out that the mounting of a slip-on clamp and hose is an essentially different manufacturing operation that, if regulated, should be subject to different performance requirements from brake hose assemblies. The clamp assemblies are subject to NHTSA safety defect authority. Comments disagreed for various reasons on the exclusion of hose assemblies containing used components from the standard. The NHTSA concludes that the exclusion is realistic and justified.

The standard now defines "permanently attached end fittings" to make clear that 3-piece hose fittings which utilize sacrificial sleeves or ferrules are permanently attached end fittings and that the hose used with them is not prohibited by S7.1. In addition to the action taken with respect to the definition,  $\frac{3}{4}$ -in and  $\frac{1}{2}$ -in hose sizes have been added to Table III under

both Type I and Type II hose in order that their use may be continued.

The definition of "rupture" has been modified slightly to make clear that the two types of failure included in the definition are "separation of the hose from its end fitting" and "leakage". Both a small leak and a hose burst constitute "leakage" under this definition.

Manufacturers of brake hose assemblies and vehicles petitioned for numerous variations in the labeling provisions. The many proposed changes in brake hose assembly labeling illustrate the importance of uniform labeling in a field where differing combinations of responsibility exist between manufacturers and installers of hose assembly components.

The NHTSA has determined that the basic assembly banding technique set forth in Notice 8 remains the clearest uniform identification method for assembly manufacturers. The band may be freely attached at any point on the assembly to minimize binding and wear as long as it is retained by the end fittings. An exception to the banding requirement has been made for the vehicle manufacturer who assembles and installs his own brake hose assemblies, because his assemblies are integrally related to the vehicle, and the vehicle certification and identification information serves to identify and certify the hose assembly. The manufacturer may choose to band those hose assemblies subject to being rebuilt, to delimit his responsibility in the event a rebuilt assembly fails.

Manufacturers will be permitted to mark the date of manufacture by day or month on the assembly and hose. The identification code required on each component is not yet available for issuance and therefore an amendment of the standard has already been issued to permit use of a manufacturer designation in place of the code (39 F.R. 3680, January 29, 1974). That language has been revised to allow the use of a manufacturer designation that does not consist of the block capital letters otherwise required by S5.2.2, S5.2.3, and S5.2.4.

The labeling requirements now reflect the use of nominal inside and outside diameter designations. The hose labeling has been modified from "not less than 6 inches" to "not more than



6 inches" in response to many requests. Toyota's request for one-stripe labeling of required and optional information has been denied, to ensure that the required information appears at least once on hose as short as 4 inches. The NHTSA has denied requests for rearrangements of the required information, concluding that they would not make it clearer to the user. In response to Midland-Ross' request for clarification, it is reiterated that, while the NHTSA requires certain safety-related information expressed in a certain format, it does not prohibit the addition of other information elsewhere on hydraulic, air, or vacuum hose.

Several manufacturers of hydraulic brake hose assemblies argued that end-fitting labeling information becomes meaningless once a fitting is permanently attached to a hose. They reasoned that the crimping process deforms the fitting, its coating, and possibly the lettering, so that no fitting manufacturer would certify his product to the assembler, and that the responsibility for the fitting's conformity would in any case fall on the assembler.

While the NHTSA expects the labeling information to serve a useful purpose on reusable and 3-piece permanently attached end fittings, the limited benefit of markings on a crimped fitting justifies their elimination. In fact the one performance requirement that applies to fittings has been modified to reflect the crimping process and it effectively becomes the assembler's responsibility to meet this corrosion resistance provision.

There were several general comments on the performance requirements and the test procedures. There were requests for physical tolerances, especially for the expansion test apparatus, and related accommodations for test purposes. These arise from misunderstanding of the legal nature of the safety standards, which are performance levels that each vehicle or item of motor vehicle equipment must meet, and not instructions for manufacturer testing. In the case of a calibration factor, for example, the NHTSA set an exact performance level by stating its requirement without a tolerance. Then, in compliance testing, it determines the calibration factor of its equipment and gives the benefit of that factor to the manufacturer in assessing the test results.

Correspondingly, the manufacturer should deal with an exact performance level by determining the calibration factor of his equipment and penalizing his test results by that amount. Manufacturer testing should be directed at proving the equipment's capability in the exercise of due care, by testing under conditions at least as adverse as any that could be established in accordance with the procedures. For example, to accept Goodyear's suggested room temperature range of 65° to 90°F. would permit the NHTSA to test at any temperature within the range, and a manufacturer would correspondingly have to test to assure himself that his product would conform at every point within the range.

Toyota expressed some confusion about sequential testing. As stated in S5.3, S7.3, and S9.2, a particular hose, end fitting, or hose assembly need not meet further requirements after having met the constriction requirements and any one other requirement listed. A particular hose assembly, therefore, would have to meet the constriction requirement in each case and then one other selected requirement, of which S5.3.6, *Water absorption and tensile strength*, is one example.

The constriction requirement requires that any cross section which the NHTSA chooses to examine will be a certain percentage of the nominal diameter. Again the manufacturer may utilize whatever test method convinces him in the exercise of due care that his product conforms to the constriction requirement. Chrysler objected to the application of the constriction test to hose assemblies, citing situations where restrictions are designed into brake systems for pressure control. The NHTSA has determined that the established percentages limit constrictions to a safe level.

With regard to the requirements as a group, it is noted that, while a hose must conform to any of the requirements, it need not be tested to requirements that are obviously inapplicable. For instance, thermoplastic tubing need not be subjected to the adhesion test because it is obvious that there are no layers in this constriction which could fail to adhere.

Numerous comments were addressed to specific hydraulic performance requirements. The expansion and burst-strength requirements included a

30-minute waiting period, which has been eliminated as unnecessary. The procedure is modified to better describe the test sequence, and two values in Table I are corrected.

With regard to mounting hose assemblies having L-shaped end fittings in a flexing machine, the test procedures have been modified to permit the use of adapters to secure the assembly to the machine with the same orientation as a straight assembly.

The low-temperature resistance test for hydraulic hose has been modified from  $-65^{\circ}\text{F}$ . to  $-40^{\circ}\text{F}$ . in line with air and vacuum hose test values.

A hydraulic hose assembler objected that use of SAE RM-1 compatibility fluid had not been proposed in Notice 7 and therefore could not be specified in the final rule. Notice 7 proposed use of "brake fluid conforming to Standard No. 116." This means that the NHTSA could have chosen any such fluid for use in its tests, and that the manufacturer would have to test with each fluid or otherwise assure himself in the exercise of due care that his hose assembly could meet the requirements using each fluid conforming to Standard No. 116. Specification of a single fluid is therefore a relaxation of the proposed requirement. The Society of Automotive Engineers Referee Materials Subcommittee, which contracts for production of RM-1 fluid, has assured the NHTSA of its continued availability for at least the next 3 years. A modification of the requirements has been made for mineral-type systems.

The NHTSA agrees with Wagner Electric that the end fitting corrosion requirement must accommodate the crimping and labeling process, and the requirement is amended to permit displacement of the protective coating necessary to mark the fittings and attach it to a hose.

Several comments were addressed to the air brake hose requirements. Clarifying language has been added to make clear that air brake hose assemblies may be constructed with permanent or reusable end fittings. Table III now includes A- and B-type hose in  $\frac{3}{8}$ - and  $\frac{1}{2}$ -in special diameters to assure its continued availability, particularly for replacement purposes. The constrictor test value of 66 percent remains unchanged because the calculation method is

already consistent with hydraulic value of 64 percent.

Table IV is revised to include outside dimensions. New, smaller radii for tubing tests cannot be adopted, however, until there has been notice and opportunity to comment. In answer to Toyota's request for interpretation, it is correct that the test cylinder radii are directly proportional to the diameter of the hose being tested. Suggestions to examine the inner as well as outer layers of hose subjected to the low-temperature resistance test will be considered in future rulemaking, since interested persons should be given notice and opportunity to comment. The same considerations apply to Samuel Moore Company's suggested higher test temperature in the oil-resistance requirement, more demanding percentages in the length change requirement and the high-temperature burst strength test. The oil resistance test specimen has been modified to one-third of an inch in width because  $\frac{1}{2}$ -in specimens can not be cut from the smaller hose sizes. The burst strength value is reduced to 800 psi to accommodate nylon and thermoplastic tubing while retaining a safety performance level five times that of normal operating conditions.

The application of air pressure has been retained in the length change test and the air pressure test, despite requests for "optional" pressure sources. Hidden options of this type are generally undesirable in the safety standards, since they make uncertain the level of required performance, and complicate the comparison of manufacturer and NHTSA test results. The manufacturer is free to use pressure sources other than air as long as his results assure him that the hose would meet the requirement if air were used.

Manufacturers proposed alternative means of testing the adhesion of hose layers because of the difficulty associated with testing wire-braided and small diameter hose. As pointed out in the petitions, sufficient care in conducting the present test will prevent these difficulties. Any manufacturer who believes that the alternative procedure has significant advantages should submit a petition for rulemaking with supporting data.

Some comments on the adhesion test argued for the averaging of test results without specifying any objection to the present procedure. At this time, it does not appear that averaging would be desirable for purposes of this standard. In another area, some tensile strength test values have been reduced in recognition of the use of tubing in nonarticulating applications. The distinction between permanent and reusable fittings is eliminated, consistent with the rationale that the components may operate under the same conditions.

The NHTSA denies Wagner Electric's requested re-establishment of the air pressure test procedures which appeared in Notice 7. These procedures were modified because comments objected to the measuring technique. As noted previously, the manufacturer may use any test method which assures him the equipment meets the requirement as stated.

One significant question was raised with regard to the vacuum hose requirements. Table V inadvertently listed the same hose lengths and cylinder radii for the low and high temperature resistance tests. A new column of values is added to that table.

Because of the additional leadtime required to purchase conforming brake hose and assemblies for use in vehicles which must conform to the standard, the effective date of the standard as it applies to vehicles is delayed 4 months to Jan-

uary 1, 1975. An amendment to the presently effective Standard 106 permits compliance either with that standard or with this standard, as it is effective September 1, 1974.

Interested persons are reminded that, in addition to the amendments set forth below, an amendment of Standard 106 has already been issued which permits the use of a manufacturer designation in place of the identification code called for in the rule as first issued. (39 F.R. 3680, January 29, 1974.)

In consideration of the foregoing, both Standard No. 106, 49 CFR 571.106, in its presently effective form and Standard No. 106 as it is effective September 1, 1974, and January 1, 1975, are amended.

The present Standard No. 106 is amended by the addition of a new paragraph . . . .

*Effective dates:* September 1, 1974, for equipment covered by the standard; January 1, 1975, for vehicles to which the standard applies.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on February 20, 1974.

James B. Gregory  
Administrator

**39 F.R. 7425**  
**February 26, 1974**



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74

### Brake Hoses

(Docket No. 1-5; Notice 11)

This notice amends Standard No. 106, *Brake hoses*, 49 CFR 571.106, by modifying the definition of "permanently attached end fitting", the effective date for brake hose assemblies and vehicles, several labeling requirements, and certain tensile strength, constriction, and corrosion resistance requirements, in response to petitions for reconsideration of amendments published January 29, 1974 (39 FR 3680) (Notice 9) and February 26, 1974 (39 FR 7425) (Notice 10). In addition, Toyo Kogyo Company, in a letter request for interpretation, pointed out an inadvertent change of language in Notice 8 (38 FR 31302, November 13, 1973) which is corrected in this notice.

#### Notice 9

Notice 9 amended the standard to permit the use of "a designation that identifies the manufacturer" of an end fitting, hose or hose assembly in place of a manufacturer identification code which the NHTSA is not yet prepared to issue. Any designation which is filed with the NHTSA may be used until the permanent code is implemented. The only comment on Notice 9 was made by Weatherhead Company, which objected to any interim marking on grounds of expense and advocated elimination of all label identification from the hose. The NHTSA considers identification other than a colored thread to be reasonable and necessary for rapid recognition, and Weatherhead's first petition is denied.

Although not raised by Weatherhead in its petition, several assemblers have objected that the manufacturer designation requirement conflicts with the general industry practice of marking hose with the distributor's designation. The NHTSA requirement that the manufacturer designation appear on one side of the hose in the

required format does not in any way prevent labeling of hose with the distributor's designation on the opposite side of the hose along with other optional information.

Weatherhead petitioned for revision of the identification requirements to permit designations other than block capital letters and numerals. The necessary language has already been added to the standard in Notice 10.

Weatherhead also requested a modification of the definition of "end fitting" that would exclude end fitting components from the labeling requirements in order to accommodate the practice of assembler intermixing of components made by different manufacturers. Such an exclusion of components, combined with the present exclusion of labeling crimped-on fittings, would eliminate all identification requirements for all fittings. While unlabeled crimped fittings may be traced through the hose assembler's band, "renewable" or reusable fittings must be labeled at least once to permit location of any defective fitting which was attached to new hose and then reused after it passed out of the control of the assembler and the NHTSA. Although the NHTSA does not find labeling of each part of a fitting to be feasible, it does not consider it unduly burdensome for an assembler to ensure that the newly assembled fitting is composed entirely of parts made by the manufacturer whose designation appears on one part. This also responds to International Harvester's request for interpretation on labeling multi-piece fittings.

#### Notice 10

Notice 10 amended the standard in response to petitions for reconsideration of the regulation as it had been issued in final form November 13,

1973 (38 FR 31302). The twelve petitions for reconsideration of this notice emphasized confusion over the status of hose, fittings, and assemblies manufactured before the effective date, and disagreement with certain labeling requirements and the applicability of the standard to particular hose types and applications.

The use of hose and fittings manufactured before the September 1, 1974, effective date raises two problems. The most difficult of these problems is that the components may not conform to any or all of the performance requirements of Standard 106, and therefore could not be made into assemblies or vehicles after the appropriate effective date. To alleviate this "existing stock" problem, Notice 10 delayed the effective date of the standard for vehicles 4 months to permit the utilization of non-106 components. This did not solve the problem, however, as pointed out by Ford and by White Motor Corporation, because the hose and fittings made immediately before the effective date must be made into assemblies after the effective date before they can be used in vehicles. This notice therefore delays the effective date of the standard for six months as it applies to assemblies. The March 1, 1975, date is set with reference to materials submitted by vehicle and hose and fitting manufacturers that support a delay somewhat longer than 4 months to absorb existing stocks. Because it will take some months to stock inventories with conforming assemblies after March 1, 1975, the effective date of the standard for vehicles is delayed until September 1, 1975.

The delay in effective date for assemblies and vehicles will minimize difficulties in the transition to hose marked with the DOT symbol. This transition problem arises because of the requirement that the DOT appear on conforming hose, fittings, and assemblies, but that it not appear on hose to which no safety standard applies, that is, hose manufactured before the standard's effective date. This principle has been consistently followed in the labeling of tires and other items of motor vehicle equipment to avoid confusion in the meaning of the symbol and the concept of compliance. The problem does not arise in the labeling of hydraulic hose for use in passenger cars because a standard already applies and the

DOT symbol can be used to indicate compliance with it.

The difficulty in labeling brake hose with the DOT symbol is not that of a September 1, 1974, "midnight changeover". The problem is that any hose assemblies used in new vehicles must conform to the standard as of the effective date for vehicles. With the present change, the hose and fittings used as original equipment must bear the DOT symbol as of September 1, 1975. The new effective dates provide six months to absorb pre-standard stock in assemblies and then six more months to prepare conforming assemblies for use in 1976 model vehicles. What stock remains can, of course, be sold in the replacement market.

The greatest number of petitions concerned the applicability of the standard to specific hose types and applications in the vehicle. Three petitions again sought the exclusion of plastic tubing from the standard, stating reasons which have already been responded to in detail in the preamble to Notice 10. The major concern in this area appears to be whether specific tubing assemblies are subject to the high tensile strength tests for "relative motion". This term has raised numerous requests for interpretation, and to make clearer the tensile strength distinction, "relative motion" has been replaced with more specific wording. The new language specifies that hose assemblies (other than coiled nylon tube assemblies which meet the requirements of BMCS Regulations (49 CFR § 393.45)) used between chassis and axles or between towing and towed vehicles must meet the higher tensile strength requirements.

The American Trucking Association (ATA) mistakenly concluded that the signal line between tractor and trailer was totally excluded from the standard, and also the line to any reservoir and to the spring brakes. All these lines fall within the definition of brake hose because the signal pressure, the pressure to the reservoir, and the pressure to the spring brake chamber in each case is "used to apply force to the brakes". This wording should not be misread as restricted to pressure directly used to *apply* the brakes.

The definition of brake hose has been reworded to avoid a problem in another area. As presently worded only hose actually used in the brake sys-

tem would qualify as brake hose and be entitled to be labeled with the DOT symbol. The rewording permits hose "manufactured for use in a brake system" to be labeled with the DOT symbol even if it is used, for example, as a supply line to the windshield wiper system.

Weatherhead requested further definition of the term "flexible" as it is used in the definition of brake hose. The NHTSA continues to believe that this concept can best be treated on a case-by-case request for interpretation and, as noted in Notice 10, will continue to make interpretations upon request.

Chrysler petitioned for a change in the wording of the definition of "brake hose", apparently directed toward the exclusion of the hydraulic brake booster assembly from the standard. Ford, General Motors, and the Motor Vehicle Manufacturers Association (MVMA) also petitioned to exclude the hydraulic booster lines on the grounds that they are subject to a different working environment than brake hose. The most important difference is the constant flow of fluid through them, requiring a long, complicated, tuned, and expandable hose. The NHTSA has concluded that the difference in requirements for the hydraulic booster system justifies special performance requirements for this application. Until these requirements are developed, hydraulic brake booster hose running from pump to accumulator will be considered to be exempt from the requirements of this standard. Hose running from accumulator to booster will also be exempted if redundant booster is provided. This exemption applies to hoses for which Rolls Royce petitioned for exemptions from certain test requirements.

White Motor Corporation petitioned to include "the chassis portion" in the definition of brake hose assembly, incorrectly assuming that the discussion of chassis plumbing in the preamble to Notice 10 limited the definition to brake line mounted to the frame at one point. Chassis plumbing was emphasized in Notice 10 only because inclusion of that part of the brake system in the standard had been questioned by several petitioners. In answer to White, Standard No. 106 is not limited to hose "installed on the chassis to the point of the last mechanical connection",

but includes any hose equipped with end fittings for use in a brake system.

The ATA expressed dissatisfaction at the applicability of hose assembly requirements to assemblies made in the field from all-new components. The NHTSA has accommodated emergency repairs by excluding hose assemblies which contain used components, whether renewable or reusable. There is no reason, however, to routinely exempt the smaller assemblers from the requirements of the standard simply because past practices have permitted fabrication of assemblies in the field by anyone who has the necessary equipment. In this regard, the NHTSA believes the practice of refabrication of hose assemblies in the correct length in the field for emergency repairs promotes safety, by not forcing substitution of a permanent assembly which is only a "close fit". For this reason Weatherhead's petition to require permanent fittings on all brake hose is denied.

Several questions were raised with regard to end fittings. Most important to manufacturers is elimination of the reference to two- and three-piece end fittings in the definition of permanently attached end fittings. This definition, as well as the reference in S5.2.3, has been changed to eliminate this design restriction.

The status of intake manifold connectors and booster check valves typically clamped to the ends of vacuum booster hose were also questioned. "Brake hose end fitting" is defined as "a coupler, other than a clamp, designed for attachment to the end of a brake hose." As typically configured, the couplers are the clamps, and the intake manifold connection and brake booster check valve are engine components to which the brake hose has been attached by the clamp couplers. Therefore neither component is subject to Standard 106.

Several petitions addressed the labeling of fittings, as well as hose and assemblies. Two of the major concerns, use of the DOT symbol and the marking of multi-piece end fittings, have been discussed earlier.

Labeling of brake hose "at intervals of no more than six inches, measured from the end of one legend to the beginning of the next" can create several problems; for example, spray painting of a vehicle frame in which hose has been

mounted. Mack argued that the legend need appear only once on hose which has been made into an assembly and mounted in a vehicle. The NHTSA has concluded that the value of the continuous line and legend, as a ready source of the hose characteristics on bulk hose and as aid to untwisted installation, is exhausted when an assembly has been mounted. Therefore S5.2.2 has been modified to require only that the legend appear at least once on assemblies mounted in vehicles. It is emphasized that masking material used in painting must be removed so that the labeling does appear on the completed vehicle. Only the required information may appear along one side of the hose.

The labeling distance of a maximum 6 inches between legends is intended to ensure adequate repetition on bulk hose without restricting the size of the legend. A manufacturer is free to make the legend as short or long as he feels is necessary to make the information clear, and on this basis, Midland-Ross' petition to require labeling at 6-inch intervals measured from the beginning of one legend to the beginning of the next is denied. Weatherhead expresses confusion over a Notice 10 preamble reference to the complete legend appearing in 4 inches. This statement was only intended to illustrate a situation where a mixture of optional and required labeling would interfere with the appearance of complete labeling on some hose assemblies, and it did not imply a requirement that the legend must be 4 inches long.

Although no manufacturer specifically requested a change, the NHTSA has concluded that clarity would not be substantially degraded by permitting required label information to appear in any order. The requirement for a specific order of label information has accordingly been deleted in order to reduce waste associated with hose cutting. The lettering height of one-eighth of an inch is considered necessary for clarity and will be retained.

Mack requested confirmation that end fitting labeling may be covered with paint until a person strips off the paint to read the labeling. This interpretation is incorrect. To be useful, label information must be clearly visible for easy reference.

Midland-Ross requested clarification of the use of the letters "SP". These letters distinguish, two types of air brake hose: regular 1/2-inch hose and hose that requires special reusable fittings. This is the only situation where different hoses share the same size designation. The NHTSA cannot agree with Midland that wider use of the letters would clarify the use of other components.

Weatherhead challenged as discriminatory the required labeling by manufacturers of hose assemblies other than those assembled and installed by a vehicle manufacturer in vehicles manufactured by him. The argument relied in part on a statutory requirement that "every manufacturer . . . shall furnish to the distributor or dealer at the time of delivery of such vehicle or equipment . . . the certification that . . . [it] conforms . . . in the form of a label or tag . . ." (15 U.S.C. § 1403).

This section covers vehicles and equipment only "at that time of delivery" to a distributor or dealer. In contrast, the exception in question applies to hose assemblies mounted in vehicles by their manufacturers which do not fall under the language of § 1403.

Weatherhead also requested an alternative labeling procedure in place of banding which the NHTSA has determined is not desirable because it detracts from the uniformity of the labeling procedure, and accordingly this petition is denied.

Several manufacturers have requested approval of specific banding techniques, including a molded rubber ring, a metal band crimped together, and an adhesive label which adheres to the hose. The NHTSA interprets a band as a label which encircles the hose completely, and attaches to itself. To constitute labeling at all, the band must, of course, be affixed to the hose in such a manner that it can not be easily removed.

Manufacturers raised objections to the specific performance requirements as they apply to hose types. Manufacturers of hydraulic hose assemblies requested exclusion of various types of end fittings from the constriction requirements to permit L-shaped and T-shaped fittings, distribution blocks, and residual valves, which are designed to have small diameters. The NHTSA



has concluded that the major constriction problems occur in joining the hose to the fitting, and has amended the constriction requirements so that they apply only to that part of the fitting in which hose is inserted.

Weatherhead requested a calibration factor for the expansion test procedure used with hydraulic hose. The NHTSA explained in its last notice that, although calibration factors exist and must be taken into account in any performance test, it is inappropriate to state a calibration factor as part of the performance requirement. Weatherhead's petition is accordingly denied.

Several manufacturers pointed out the inadvertent substitution of "rupture" as the performance requirement to be met in the tensile strength tests of hydraulic hose and air brake hose. This language has been replaced with a requirement of no separation of the end fittings from the hose. With regard to "rupture", it should be noted that the definition of the term was not substantively changed in Notice 10, but only rearranged for clarity.

Another omission has been corrected by the addition of language to the corrosion resistance requirements of air and vacuum brake hose fittings to allow the same displacement of a protective coating which is permitted for hydraulic hose end fittings. It is noted for the benefit of manufacturers who have requested interpretation that discoloration of a brass end fitting is not of itself considered to be corrosion.

Most manufacturers objected to the restrictive elements of Table III, making various arguments for increasing the number of sizes available for use with reusable fittings. Table III, however, is intended to be a first step toward standardization of reusable fittings and hose, and dislocations of former practices must be expected in restricting the choice of available sizes and types. The petitions to eliminate Table III restrictions, or to add new sizes to it, are denied for these reasons. Weatherhead argued that permanent as well as reusable hose should be subject to size limits, but the NHTSA has found that this would be a design restriction without corresponding safety benefit. The hose used with permanent fittings is generally assembled by high volume manufacturers, not repair operations in the field, and the

mismatch problem, to which standardization of reusable hose is addressed, should not occur. The petition is therefore denied.

In response to Parker-Hannifin's inquiry, the NHTSA favors no one fitting type among the choice of reusable air brake fittings.

Stratoflex questioned a leakage requirement in a hydrostatic test of air brake hose when at the same time an air pressure test permits a limited amount of air leakage. The NHTSA makes the distinction on the basis of the rubber composition which permits air but not water to permeate the hose wall.

With regard to vacuum hose requirements, Midland-Ross petitioned for the use of wording in S9.2.9 that appeared in Notice 8, believing it to be more clear than the language substituted for it in Notice 10. On balance, the NHTSA agrees that "adjacent layers" accurately describes heavy as well as light hose construction, and it is re-established. It should be understood that this wording includes separation of the outer cover from the tube.

Toyo Kogyo, in a letter request for interpretation, questioned a language change between the Notice 7 proposal (36 FR 5855, March 30, 1971) and the Notice 8 rule, in S9.2.8. The swell test of vacuum hose called for "no leakage . . . after which there shall be no separation of the inner tube from the fabric reinforcement of the hose." By error, the Notice 8 requirement instead called for no "collapse," which would require absolutely no deformation of the hose in terms of decreased interior diameter. The NHTSA did not intend to increase the requirement and this notice re-establishes the intended performance level. It should be noted that a "no collapse" requirement would have been inconsistent with the shorter vacuum test requirements of S9.2.7.

One manufacturer asked for an explanation of the use of "[Reserved]". This term is used in the Code of Federal Regulations to indicate an omission or deletion, to avoid having to renumber the following units. It does not indicate reservation for any specific purpose.

Several minor changes are made to the standard to correct typographical errors found in Notice 10. It is also noted that the Notice 10

Effective: September 1, 1974  
March 1, 1975  
September 1, 1975

amendment of S5.2.3 appearing in the *Federal Register* appeared to delete paragraph (e), which in fact remains in the standard.

In consideration of the foregoing, both Standard No. 106 (49 CFR 571.106) in its presently effective form, and Standard No. 106-74 (49 CFR 571.106-74) as it is effective September 1, 1974, are amended,

*Effective dates.* September 1, 1974, for brake hose and brake hose end fittings; March 1, 1975,

for brake hose assemblies; September 1, 1975, for vehicles to which the standard applies.

(Secs. 103, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1403, 1407); delegation of authority at 49 CFR 1.51.)

Issued on June 24, 1974.

James B. Gregory  
Administrator

**39 F.R. 24012**  
**June 28, 1974**

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74

## Brake Hoses

(Docket No. 1-5; Notice 12)

This notice amends Standard No. 106-74, *Brake hoses*, 49 CFR 571.106-74, to provide that hose assemblies of the same internal diameter are subjected to the same tensile strength requirements. This amendment responds to a petition for reconsideration of the most recent amendments of Standard No. 106-74 (Notice 11) filed by Samuel Moore and Company on July 1, 1974.

The National Highway Traffic Safety Administration (NHTSA) is responding to this petition before considering all other comments on Notice 11 because of the effect of this ruling on Standard No. 121, *Air brake systems*, which becomes effective January 1, 1975, for trailers and March 1, 1975, for trucks and buses. The design and testing of air brake systems for the standard has been based in part on the continued availability and use of 3/8-inch OD plastic tubing, a popular substitute for 1/4-inch ID hose in some tractor-to-trailer applications. Samuel Moore has pointed out that, although 3/8-inch tubing and 1/4-inch hose deliver the same air supply under the same circumstances, Standard No. 106-74 subjects the tubing to greater tensile strength requirements than hose. As a result the tubing may have to be withdrawn from the market because it is unable to meet the higher requirements. Designers of the new air brake systems must know immediately if 3/8-inch tubing can continue to be used.

The NHTSA intends that all brake hose subject to the standard, including traditional rubber hose and the newer plastic tubing, be subject to appropriate tests for the environment and use in which they serve. In this situation 3/8-inch

OD tubing has the equivalent bore of 1/4-inch ID hose. The NHTSA hereby amends the standard, by adding "in nominal internal diameter" to S7.3.10 and S7.3.11 following each size designation, to test these products to the same tensile strength requirements.

A typographical error in Notice 11 which changed the meaning of the tensile strength requirements is corrected here by the addition of parentheses around the phrase "other than a coiled nylon tube assembly which meets the requirements of § 393.45 of this title" appearing in S7.3.10 and S7.3.11.

Additionally, Notice 11 attempted to resolve an ambiguity in Notice 10 concerning the deletion of subparagraph (e) of S5.2.2 of the standard. Notice 11 mistakenly referred to S5.2.3, and it should be noted that, in actuality, it was the Notice 10 amendment of S5.2.2 appearing in the *Federal Register* that appeared to delete paragraph (e), which in fact remains in the standard.

In consideration of the foregoing, Standard No. 106-74 (49 CFR 571.106-74) is amended....

Effective date: March 1, 1975.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on August 2, 1974.

James B. Gregory  
Administrator

39 F.R. 28436  
August 7, 1974



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74

## Brake Hoses

(Docket No. 1-5; Notice 14)

This notice amends Standard No. 106-74, *Brake hoses*, 49 CFR 571.106-74, to permit, for a limited time, the manufacturing of brake hose assemblies which comply with the standard in all respects except that they are constructed with hose or end fittings which do not meet certain labeling requirements.

A notice of proposed rulemaking was published on October 3, 1974 (39 F.R. 35676) (Notice 13), which proposed amendment of the standard to facilitate the depletion of inventories of brake hose that is not properly labeled. All of the comments supported the proposal. Several of those commenting suggested that the proposed temporary exception to the labeling requirements be extended to cover end fittings as well as hose. These manufacturers pointed to large inventories of end fittings, manufactured before September 1, 1974, which meet all of the performance requirements of the standard, but which could not be used because they are not properly labeled. As with the brake hose discussed in Notice 13, safety of performance is not a major issue. The NHTSA has determined that the use of both non-conforming hose and end fittings in assemblies manufactured before September 1, 1975, while it may make enforcement by this agency temporarily more difficult, is appropriate and in the public interest.

In its petition for reconsideration of Notice 11 (39 F.R. 24012, June 28, 1974), Wagner Electric Corporation requested an amendment to permit the labeling of brake hose assemblies with DOT-marked bands in accordance with S5.2.4 before

March 1, 1975, the date assembly labeling becomes effective. The NHTSA takes this opportunity to respond to Wagner's petition ahead of other petitions for reconsideration of Notice 11 in order to clarify the standard's scheme of effective dates.

Even though Standard 106-74 has already been published, there are no requirements in it applicable to air brake hose assemblies or to vacuum brake hose assemblies until March 1, 1975. Consequently, use of the DOT symbol on such assemblies manufactured before that date would be inconsistent with the established meaning of that symbol as a certification of compliance with *applicable* standards. Use of the symbol to indicate "anticipatory compliance", as Wagner has suggested, would foster confusion in both the meaning of the symbol and the concept of the certification required by Section 108(a)(3) of the National Traffic and Motor Vehicle Safety Act of 1966. Accordingly, Wagner's petition is denied.

The problem of excessive inventories of pre-standard hose and end fittings arose from incorrect assumptions about the effective date of the standard as applied to hose assemblies which are not completed until the hose is installed in the vehicle. No parallel misunderstanding can arise with respect to the September 1, 1975 effective date for vehicles, so brake hose assemblers can plan their production schedules accordingly.

In consideration of the foregoing, Standard No. 106-74 (49 CFR 571.106-74) is amended by the addition of a new section . . . .

Effective: November 11, 1974

*Effective date:* November 11, 1974. Because this amendment relieves a restriction, the National Highway Traffic Safety Administration finds, for good cause shown, that an immediate effective date is in the public interest.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

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Issued on November 6, 1974.

James B. Gregory  
Administrator

**39 F.R. 39725**  
**November 11, 1974**

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74

## Brake Hoses

(Docket No. 1-5; Notice 16)

This notice amends 49 CFR 571.106-74, Standard No. 106-74, *Brake hoses*, by modifying several labeling requirements and the deformation test requirement for vacuum brake hose, in response to petitions for reconsideration of amendments which were published June 28, 1974 (39 F.R. 24012) (Notice 11). Several of the petitions are denied; others requested changes which are outside the scope of a petition for reconsideration, and will be considered as petitions for future rulemaking.

Ford Motor Company petitioned for relaxation of the labeling requirements of the standard as they apply to brake hose end fittings. Recognizing that labeling of all components of an end fitting is not feasible, the NHTSA in Notice 11 interpreted S5.2.3 to require that all unlabeled components of an end fitting be made by the manufacturer whose designation appears on one part. Ford pointed out that, because end fitting components made by different manufacturers and purchased according to the assembler's specifications are virtually interchangeable, this interpretation would preclude the cost saving practice of purchasing individual components from the source offering the most favorable price. Because most of the performance requirements of the standard apply to assemblies, responsibility for noncompliance and for safety defects will usually belong to the assembler. Accordingly, the standard is amended to require labeling on at least one component of an end fitting, thus permitting the practice of mixing parts from different sources to continue as requested by Ford.

Several vehicle manufacturers petitioned for changes in the interpretation of the labeling requirements, to allow labels on hose and end fittings to be obscured by paint or by masking

materials. New information indicates that spray painting of end fittings leaves their labeling visible in most cases and that, in the occasional instances where labeling is obscured, excess paint may be easily scraped off. In addition, painting protects the labels and fittings against corrosion. Therefore, the NHTSA will not consider the painting of end fittings to be a violation of the standard. Painting of hose labels, however, presents different considerations, because removal of paint from a hose may damage both the label and the hose. Therefore, the label on a hose must remain visible after painting unless it is protected by masking which can be removed manually to permit inspection. Because masking material can protect the label from obscuration by road grime, and because the expense required to remove it after painting does not appear justified, hose labels may remain masked after painting provided that the masking material is affixed in such a way that no adhesive contacts any part of the label.

BMW petitioned for a relaxation of the deformation test requirements for wire-reinforced vacuum hose. S9.2.10 in its present form requires a vacuum brake hose to return to 90 percent of its original diameter within 60 seconds after five applications of force as specified in S10.9. The NHTSA has determined that a reduction of the 90 percent figure to 85 percent will facilitate the use of wire-reinforced hose having greater resistance to collapse under vacuum, and is in the public interest. Therefore, BMW's petition is granted.

The Rubber Manufacturers Association (RMA) and Gates Rubber Company requested an exception to the hose labeling requirement for hose lengths shorter than the length of a complete

legend plus the space between legends. These petitions are denied. The NHTSA has no reason to believe the hose labeling cannot be reduced in length to fit virtually any hose length. The 6-inch distance between legends specified in S5.2.2 is a maximum, and for hose which is to be cut into short lengths, this distance can be reduced or eliminated. Also, lettering width may be reduced because there is no width requirement in S5.2.2 for specified lettering. In addition, Notice 11 modified the standard to permit the required information to appear in any order to facilitate hose cutting.

Kugelfischer Georg Schafer & Co. of Germany expressed dissatisfaction with the banding requirement for brake hose assemblies. Requests to eliminate this requirement were responded to in Notice 10 (39 F.R. 7425, February 26, 1974). Kugelfischer also suggested exemption from the banding requirement of assemblers who manufacture both the hose and end fittings in their assemblies. Such an exemption would make it impossible to identify the assembler of a defective or noncomplying assembly in which hose and end fittings were made by the same manufacturer, and to which no band was attached. Therefore the Kugelfischer petition is denied.

Several manufacturers petitioned for substitution of a ball-vacuum test for the adhesion test described in S8.6 in the case of a hose which is reinforced with wire braid. The RMA petitioned for a change in the method of expressing the results of the adhesion test, to permit averaging of the values recorded on the chart. The NHTSA has tentatively found these petitions to have merit, and is considering the issuance of a notice of proposed rulemaking on these subjects.

Several of the petitions requested changes which are outside the scope of a petition for reconsideration of a rule. A petition for reconsideration is appropriate to assert that the petitioner believes that compliance with the rule as issued is not practicable, is unreasonable, or is not in the public interest, and to suggest changes on that basis (49 CFR 553.35(a)). Requests for new requirements that do not contest the appropriateness of the issued ones are properly submitted as petitions for rulemaking. Gates and the RMA petitioned for an amendment of S7.3.3 to require an internal as well as external inspection

of the hose surface after an air brake hose is subjected to the low temperature resistance test of S8.2. Stratoflex petitioned for changes in S7.3.10 and S7.3.11 to require higher tensile strength values for hoses used in certain applications. Stratoflex also petitioned for the addition to S7.3 of a flexion resistance test for air brake hose. The NHTSA considers these requests to merit further consideration and accordingly, the NHTSA will treat these petitions as petitions for rulemaking.

Several inconsistencies resulted from amendments made to the standard in Notice 11. In one case, the modification of the definition of "Permanently attached end fitting" inadvertently changed the requirements for hydraulic brake hose assemblies in S5.1. The modification was not intended to permit use of renewable fittings in hydraulic brake hose assemblies. Accordingly, S5.1 is amended to require that hydraulic brake hose assemblies incorporate only those permanently attached end fittings which are attached by deformation of the fittings about the hose by crimping or swaging. To correct another inadvertent error, S6.7.2(c) is amended to bring the brake fluid compatibility test for hydraulic hose into conformity with the constriction test as changed by Notice 11. In response to an inquiry from BMW, new entries are made in Tables V and VI to cover  $\frac{7}{16}$ -inch diameter vacuum hose. To clarify the meaning of S5.2.2, the words "may appear" in the first paragraph are changed to read "need appear". In addition, several typographical errors have been corrected.

In consideration of the foregoing, Standard No. 106-74 (49 CFR 571.106-74) is amended. . .

*Effective date:* March 17, 1975. Because these amendments relieve restrictions and create no additional burdens, the NHTSA finds, for good cause shown, that an immediate effective date is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51)

Issued on: March 10, 1975.

Noel C. Bufo  
Acting Administrator

40 F.R. 12088  
March 17, 1975



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74****Brake Hoses****(Docket No. 1-5; Notice 17)**

This notice delays for 6 months the effective date of the hose label masking requirements of 49 CFR 571.106-74 (Standard No. 106-74 *Brake Hoses*), in order to allow time for public comment on a proposal to eliminate those requirements.

S5.2.2, S7.2, and S9.1 of the standard require certain information to be labeled at intervals of not more than 6 inches on new hydraulic, air, and vacuum brake hose, respectively. Those requirements were effective September 1, 1974, and are unchanged by this notice. S5.2.2, by itself and as incorporated by reference in S7.2 and S9.1, also requires at least one legend of this information to remain either visible after painting and undercoating, or properly masked, on each brake hose in a completed vehicle. This requirement, which as a practical matter requires masking, would become effective September 1, 1975, because it applies to vehicles. The NHTSA intends to propose, in the near future, an amendment of Standard No. 106-74 that would eliminate the requirement entirely. In order to allow time for public comment on the proposal, and to permit vehicle manufacturers to defer preparation for compliance with a requirement which might never become effective, this notice delays

the effective date of the masking requirement. There is no change in the requirement that vehicles manufactured on or after September 1, 1975, be equipped with brake hoses, brake hose end fittings, and brake hose assemblies that comply with the standard.

In consideration of the foregoing, the effective date of the requirement in S5.2.2, S7.2, and S9.1 of 49 CFR 571.106-74 (Standard No. 106-74, *Brake Hoses*), that hose label information remain visible on completed vehicles unless properly masked, is changed to March 1, 1976. Because of the need to allow time for public comment on the prospective proposal to eliminate the requirement, the NHTSA for good cause finds that notice and public procedure on the delay are impracticable and contrary to the public interest.

(Sec. 103, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1407); delegation of authority at 49 CFR 1.15.)

Issued on July 29, 1975.

James B. Gregory  
Administrator

**40 F.R. 32336**  
**August 1, 1975**



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74

## Brake Hoses

(Docket No. 1-5; Notice 18)

This notice amends 49 CFR 571.106-74 (Standard No. 106-74, *Brake Hoses*) to permit, until August 31, 1976, the manufacturing of motor vehicles with brake hose, brake hose end fittings, and brake hose assemblies which comply with all requirements of the standard except certain labeling requirements.

In a notice published on June 28, 1974 (39 FR 24012, Docket No. 1-5, Notice 11), the following scheme of effective dates was established: September 1, 1974, for brake hose and brake hose end fittings; March 1, 1975, for brake hose assemblies; and September 1, 1975, for vehicles to which the standard applies. This scheme was designed to permit an orderly phase-in of parts meeting the new standard, by allowing six months at each production stage for the depletion of inventories of non-conforming parts.

After the September 1, 1974, effective date for hose and fittings, it became apparent that, due to a misunderstanding within the industry of the standard's requirements, stocks of hose and end fittings manufactured before that date would not be completely converted into assemblies by the March 1, 1975, effective date for assemblies. Because the only difference between those non-conforming components and hose and fittings manufactured after September 1, 1974, appeared to be one of labeling, the NHTSA added S12, to the standard. That section extended until August 31, 1975, the period during which such components could be used in assemblies, provided that they met all of the standard's performance requirements (30 FR 39725, Docket No. 1-5, Notice 14).

Since the publication of Notice 14, there has been an unforeseen sharp decline in the produc-

tion of new trucks, causing several component manufacturers, distributors, and vehicle manufacturers to have on hand large inventories of hose and end fittings manufactured before September 1, 1974, and of assemblies manufactured from them before March 1, 1975.

A further extension of the time during which these inventories could be exhausted was requested in petitions for rulemaking filed by Parker-Hannifin Corp., Wagner Electric Corp., Aeroquip Corp., Samuel Moore and Co., Freightliner Corp., and PACCAR, Inc. These petitioners indicated that, without such an extension, components valued at several hundred thousand dollars would have to be scrapped, even though they comply fully with all performance requirements of the standard. The petitioners requested extensions ranging from 6 to 18 months.

As with the inventories which were the subject of the Notice 14 amendment, safety of performance is not a major issue. The NHTSA has determined that, while granting these petitions may continue to make enforcement by this agency more difficult until these inventories are depleted, the avoidance of waste in this situation is appropriate and in the public interest. Accordingly, a 1-year extension is granted. It should be noted that this amendment makes no change in the banding requirement for assemblies manufactured on and after March 1, 1975. S13(c) is merely intended to facilitate the exhaustion of stocks of unbanded assemblies which comply with the standard in all other respects.

Because of the imminent effective date of a requirement which would otherwise lead to substantial economic waste, the NHTSA for good cause finds that notice and public procedure on

this amendment are impracticable and contrary to the public interest.

In consideration of the foregoing, 49 CFR 571.106-74 (Standard No. 106-74, *Brake hoses*), is amended . . . .

*Effective date:* August 27, 1975. Because this amendment relieves a restriction, it is found, for good cause shown, that an immediate effective date is in the public interest.

(Sees. 103, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1403, 1407); delegation of authority at 49 CFR 1.51.)

Issued on August 22, 1975.

James B. Gregory  
Administrator

**40 F.R. 38159**  
**August 27, 1975**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74****Brake Hoses****(Docket No. 1-5; Notice 20)**

This notice delays until September 1, 1976, the effective date of the hose label masking requirements of 49 CFR 571.106-74 (Standard No. 106-74, *Brake Hoses*), in order to allow further time for evaluation of comments on the proposed amendment of the standard that would eliminate those requirements.

In its present form, S5.2.2 of the standard (by itself and as incorporated by reference in S7.2 and S9.1) requires at least one legend of labeling information to remain either visible after painting and undercoating, or properly masked, on each brake hose in a completed vehicle. As a practical matter, this provision requires masking. In Notice 17 (40 F.R. 32336, August 1, 1975), the requirement's effective date was set as March 1, 1976. In Notice 19 (40 F.R. 55365, November 28, 1975), elimination of the masking requirement and several other labeling requirements was proposed. The NHTSA has not concluded its evaluation of the comments that have been submitted in response to that proposal. In order to permit vehicle manufacturers to defer preparation for compliance with a requirement which

might never become effective, this notice delays the effective date of the masking requirement for 6 months.

In consideration of the foregoing, the effective date of the requirement in S5.2.2, S7.2, and S9.1 of 49 CFR 571.106-74 (Standard No. 106-74, *Brake Hoses*), that hose label information remain visible on completed vehicles unless properly masked, is changed to September 1, 1976. Because of the need for further evaluation of comments and the otherwise imminent effective date of this requirement, the NHTSA for good cause finds that notice and public procedure on this delay are impracticable and contrary to the public interest.

(Secs. 103, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1403, 1407); delegation of authority at 49 CFR 1.50.)

Issued on February 24, 1976.

James B. Gregory  
Administrator

**41 F.R. 8783**  
**March 1, 1976**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74

## Brake Hoses

(Docket No. 1-5; Notice 21)

This notice amends the definitions and several labeling requirements of Standard No. 106-74, *Brake Hoses*. The definition of "brake hose assembly" is amended to exclude certain assemblies made in the field from all new components for repair service. A definition for "vacuum tubing connector" is added, and the definition of "brake hose" is amended to exclude such connectors. The requirement that certain information remain either visible or properly masked on brake hoses in completed vehicles—the "masking requirement"—is eliminated. In addition, the requirements that hose be labeled "permanently" and that a full legend of information appear on any hose, regardless of its length, are eliminated.

The amendment of the definition in Standard No. 106-74 (49 CFR 571.106-74) of "brake hose assembly" was proposed in Notice 15 (40 F.R. S962; March 4, 1975). The remaining amendment were proposed in Notice 19 (40 F.R. 55365; November 28, 1975). Seventy-nine comments were received in response to the former proposal and 14 in response to the latter. Any suggestions for changes from the proposals not specifically mentioned herein are denied, on the basis of all the information presently available to this agency.

### NOTICE 15

Standard No. 106-74 has required the manufacturer of a brake hose assembly, except a vehicle manufacturer who assembles and installs it in a vehicle manufactured by him, to affix a band to his product. The band must be labeled with the date of assembly, a designation identifying him as the assembler, and the symbol "DOT" as a certification that the assembly meets all applicable safety standards. Assemblies made entirely of new components for installation in used vehicles come from a variety of sources. Among these

are repair shops, employees of truck fleet owners, and even truck owners themselves. Under the applicable law, each of these many assemblers is a "manufacturer". The NHTSA has concluded that, as suggested in Notice 15, the burden of affixing a band and certifying compliance with the requirements of the standard is not commensurate with the relatively small number of assemblies prepared by such manufacturers. The exclusion of the assemblies in question from the definition will relieve them of both the banding and performance requirements of the standard. The Weatherhead Company, Wagner Electric Corporation, and the Brake System Parts Manufacturing Council pointed out that the proposed amendment of the definition would permit the preparation of replacement hydraulic assemblies in the field with renewable or useable end fittings, because such assemblies would no longer be subject to S5.1, which requires hydraulic end fittings to be attached by crimping or swaging. The NHTSA did not intend such a result. Accordingly, this notice limits the proposed exclusion from the definition of "brake hose assembly" to air and vacuum assemblies.

Paccar pointed out that the driver of a tractor-trailer combination is often the owner of the tractor but not the trailer, and that the proposed amendment would not exclude assemblies made in the field by such a driver for installation on the trailer that he is towing. For this reason, the amendment adopted today also excludes from the definition those assemblies prepared by the operator of a used vehicle for installation in that vehicle.

Several distributors of brake hose and brake hose assemblies urged that the proposed exclusion be extended to cover assemblies made by them as

well. In recognition of the costs of banding, the NHTSA has granted petitions for rulemaking to eliminate the banding requirement for all manufacturers of brake hose assemblies. A notice of proposed rulemaking on this subject can be expected in the near future. Such an amendment of the standard, if adopted, will relieve distributors of the expense of banding while retaining the performance and other requirements applicable to brake hose assemblies.

#### NOTICE 19

**Masking.** S5.2.2, S7.2, and S9.1 of the standard require certain information to be labeled on new hydraulic, air and vacuum brake hose, respectively. In addition, S5.2.2 in its present form (by itself and as incorporated by reference in S7.2 and S9.1) requires, effective September 1, 1976, at least one legend of that information to be visible on each brake hose that has been installed in a motor vehicle, unless it is covered by a manually removable masking material in such a way that no adhesive contacts any part of the legend. The practical effect of this section, unless amended, would be to require the addition of an entire new stage in the vehicle manufacturing process.

Elimination of the masking requirement was proposed in Notice 19. All comments in response to the notice supported this proposal. The NHTSA has concluded that, in light of the limited usefulness of the information that would be preserved, the masking requirement creates an inappropriate burden and should be eliminated.

**Labeling of short hoses.** The standard presently requires that, effective September 1, 1976, a complete legend of labeling information appear on every brake hose, regardless of its length. Because this would require manual labeling of hose shorter than the normal label spacing, Notice 19 proposed elimination of the "short hose labeling" requirement. No objections were received, and the requirement is eliminated accordingly. For clarification, the first sentence of S5.2.2 is modified to indicate that, for labeling purposes, hose need merely be cut from bulk hose that is properly labeled.

**Permanent labeling.** Also proposed in Notice 19 was the elimination of the requirement that

hoses be permanently labeled. Volkswagen objected to such elimination, arguing that "if the labeling provision has any meaning at all, the labeling must be permanent." Even without a performance requirement, however, the information specified in S5.2.2 must appear on bulk hose to identify it to distributors, dealers, assemblers, and installers, and to facilitate compliance inspection and testing. Because the agency conducts its compliance tests on new hose and assemblies, these purposes have been fulfilled once the hose is put in service. Accordingly, the permanence requirement is deleted from S5.2.2. If in the future the agency finds a need to ensure preservation of identifying information for the life of the hose, a requirement for permanence can be established through further rulemaking.

**Vacuum tubing connectors.** Bendix Corporation petitioned for an amendment of the standard that would exclude from its coverage certain short flexible connectors used in vacuum brake booster systems. These connectors, while meeting the existing definition of "brake hose," have special performance requirements that make it inappropriate to subject them to this standard. No comments objected to the proposal in Notice 19 to amend the definition of "brake hose." Wagner Electric, however, suggested that the exclusion of tubing connectors be limited to those used in vacuum systems. Such an approach provides the requested accommodation of an existing practice that has proved acceptable without encouraging the improper design of short air and hydraulic brake hoses. Accordingly, the definition of "brake hose" is amended to exclude vacuum tubing connectors. The latter are defined as proposed, with the modification suggested by Wagner Electric.

The National Motor Vehicle Safety Advisory Council took no position on the proposals of these amendments.

In consideration of the foregoing, 49 CFR 571.106-74 (Standard No. 106-74, *Brake Hoses*) is amended. . . .

**Effective date:** July 12, 1976. Because these amendments relieve restrictions and create no



additional burdens, the NHTSA finds, for good cause shown, that an immediate effective date is in the public interest.

(Secs. 103, 112, 114, 119, Pub. L. 89-563, 80 Stat 718 (15 U.S.C. 1392, 1401, 1403, 1407); delegation of authority at 49 CFR 1.50.)

Issued on July 7, 1976.

James B. Gregory  
Administrator

**41 F.R. 28505**

**July 12, 1976**



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 106-74****Brake Hoses****(Docket No. 1-5; Notice 22)**

This notice amends Standard No. 106-74, *Brake Hoses*, to permit the manufacturing of brake hose assemblies and motor vehicles with brake hose and brake hose end fittings which comply with all requirements of the standard except labeling requirements.

Standard No. 106-74 (49 CFR 571.106-74) was implemented with staggered effective dates for brake hose, assemblies, and motor vehicles. This scheme was designed to permit an orderly phase-in of parts meeting the new standard, by allowing six months at each production stage for the depletion of inventories of non-conforming parts.

Since implementation of the standard, there have been interruptions in the production of new trucks, causing several component manufacturers, distributors, and vehicle manufacturers to have on hand large inventories of hose and end fittings manufactured before September 1, 1974, and of assemblies manufactured from them before March 1, 1975. These components comply with all performance requirements of the standard, but not its labeling requirement.

A 1-year extension of the time during which these inventories could be exhausted by manufacture into assemblies and installations in motor vehicles was therefore granted (40 F.R. 38159, August 27, 1975). The NHTSA determined that, while granting the petitions could make enforcement by this agency more difficult until the inventories were depleted, the avoidance of waste in such a situation was appropriate and in the public interest.

The 1-year extension terminated August 31, 1976, and PACCAR Corporation has petitioned for a further extension of 90 days to permit exhausting inventories that it had planned to utilize earlier but has been unable to do. Freight-

liner Corporation petitioned for a similar 15-month extension, and Wagner Corporation suggested comparable delay for assemblies and vehicles. While the agency cannot make an extension "retroactive" to September 1, 1976, as PACCAR appeared to request, the NHTSA does conclude that the same balance of interests underlying the 1-year extension continue to be valid and justify use of the remaining unlabeled components. Because the agency has granted petitions to commence rulemaking to delete the assembly-labeling requirements that are mainly at issue here, it is concluded that the relaxation of the labeling requirements for assemblies and vehicles should be indefinite. As a practical matter, brake hose and fittings for use in motor vehicles are now only produced with the correct labeling.

Because of the agency's findings that substantial loss of safety benefit would not occur in this case and that substantial economic waste will occur if the brake hose components in question are not permitted to be used, the NHTSA for good cause finds that notice and public procedure on this amendment is contrary to the public interest.

In consideration of the foregoing, Standard No. 106-74 (49 CFR 571.106-74) is amended. . . .

*Effective date:* November 26, 1976. Because this amendment relieves a restriction, it is found, for good cause shown, that all immediate effective date is in the public interest.

(Secs. 103, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1403, 1407); delegation of authority at 49 CFR 1.50.)

Issued on November 18, 1976.

John W. Snow  
Administrator

**41 F.R. 52055**

**November 26, 1976**



**PREAMBLE TO AMENDMENT TO  
FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 106-74**

**Brake Hoses**

**(Docket No. 1-5; Notice 24)**

*Action:* Final rule.

*Summary:* This notice amends Standard No. 106-74, Brake Hoses, to exempt hydraulic brake hose to be used only in assemblies having keyed end fittings from the striping requirement, to exempt air and vacuum brake hose assemblies having renewable or reusable end fittings from the assembly labeling requirement, to exempt certain end fittings that are to be used on plastic vacuum brake hose from the end fitting labeling requirement, to provide for a stamping alternative to banding for the labeling of assemblies having crimped or swaged end fittings, to exempt coiled nylon air brake hose from the length change requirement for air brake hose, and to exempt wire reinforced air brake and vacuum brake hose from the adhesion requirements. This rule responds to industry requests for less expensive labeling alternatives and for relief from several performance requirements in the standard that are not appropriate for certain hose designs.

*Effective date:* May 25, 1978.

*For further information contact:*

Fred Redler, Crash Avoidance Division,  
National Highway Traffic Safety Administration,  
Washington, D.C. 20590, 202-426-  
0853.

*Supplementary information:* This amendment is based on a notice of proposed rulemaking published December 30, 1976 (41 FR 58365). Nineteen comments were received in response to that notice and were given full consideration in the formulation of this final rule. The comments were primarily supportive of the proposed changes.

Based on a petition by one committee of the American Society for Testing and Materials (ASTM), the proposal specified an increase in the "brake fluid compatibility" test temperature from 200° F to 212° F. The ASTM Committee petitioned for the increase so that the temperature would be compatible with the equivalent 100° Centigrade (C) value that has been proposed for adoption as a standard test temperature by the International Standards Organization. Several commenters strongly objected to this slight increase in the test temperature. Commenters stated that there is no safety justification for the proposed change and that the increase, over the 70-hour test period, could cause significant changes in test results and lead to the rejection of good hose. Four foreign commenters noted that the inner tubing of much imported brake hose is made from natural rubber rather than the synthetic materials that are generally used in the United States. They argued that this small temperature increase could rule out the use of natural rubber, which has certain desirable properties and which has, otherwise, proven satisfactory in the past.

General Motors stated that the International Standards Organization has apparently not proposed a temperature of 100° C for this test and that the test temperature for "brake fluid compatibility" should remain at 200° F. ASTM Committee D-11.31 stated that the ASTM Committee that requested the change (D-11.45) was not authorized to seek the change, and the ruling ASTM Committee does not approve of the temperature increase.

Based on consideration of these comments, the NHTSA has concluded that an increase in temperature for "brake fluid compatibility" testing of brake hose is not justified. Therefore, the proposed change is not adopted.

This amendment exempts air and vacuum brake hose assemblies having renewable or reusable end fittings from the existing labeling requirement (banding) for brake hose assemblies (by specifying assembly labeling requirements only for brake hose assemblies having end fittings attached by crimping or swaging). Further, the new assembly labeling requirement provides for alternative methods of labeling by banding or by stamping (or etching or embossing) of one end fitting on the assembly. The new provisions do not require the date of assembly to be placed on the label, whether banding or stamping is used.

Paccar recommended retention of the existing requirement that the date of assembly be included in assembly labeling. Paccar contended that date of assembly is important for purposes of determining the shelf-life of an assembly. The NHTSA concludes that the assembly date is not necessary for this purpose, because it is the brake hose that generally determines the assembly shelf-life. Since the hose must bear its date of manufacture under existing requirements, this should suffice as an indicator of the entire assembly's shelf life.

Several commenters stated that the assembly labeling requirements should be deleted altogether, arguing that brake hose assembly failures are most likely to result from installation errors and damage in service rather than from improper production of the assembly. Samuel Moore and Company argued that all assembly labeling should be totally optional. While data demonstrate that most assembly failures result from improper installation or later damage, identity of the assembler is still important. If assembly labeling were not required, only reputable assemblers might identify themselves with their products. The door would be opened to the marketing of substandard hose assemblies, and there would be no way to identify the assembler in the event a safety-related defect or a noncompliance necessitated recall.

Samuel Moore and Company also stated that the proposed assembly labeling requirement would discriminate against manufacturers of crimped and swaged air brake hose assemblies, since the requirements would not be applicable to assemblies having renewable or reusable end fittings. The agency did not require labeling for assemblies having renewable or reusable end fittings because it has been found that such labeling is impractical. With reusable end fittings the assembler's identity could be lost or misapplied by a person who re-assembles the set at a later date, and the chances for confusion concerning who assembled the set would be great.

Paccar commented that the "stamping" option for assemblies having crimped or swaged end fittings could create confusion also, and that all assembly labeling requirements should be deleted. While the NHTSA agrees that some confusion might exist, labeling of assemblies having permanent end fittings is substantially more practicable and offers less possibility for confusion than labeling of assemblies having renewable or reusable end fittings. Most of the hypotheticals posed by Paccar involved situations in which permanent end fittings are stamped with the fitting manufacturer's designation (which is not required by the standard). Paccar contends confusion as to who is responsible for the assembly could result when an assembler later applies his band to the assembly or when a repair shop in the field produces an assembly using stamped end fittings.

Since end fittings that are to be attached to hose by crimping or swaging are not required to be labeled, the NHTSA concludes that it is the responsibility of the fitting manufacturer who chooses to stamp his fittings to keep adequate records whether a certain production lot of fittings are sold by themselves or whether they are used in assemblies that are also produced by the fitting manufacturer.

Paccar also argued that large assemblers who also manufacture end fittings would have an economic advantage over assemblers whom they supply with end fittings, since end fittings are usually stamped with the fitting manufacturer's designation. With the stamping labeling alternative, the fitting manufacturer who also makes

assemblies would not have to further label his assemblies, whereas, an assembler who purchased his end fittings would have to pay either the cost of special labeling of end fittings or that of banding.

The NHTSA recognizes that there are several items of higher cost borne by small assemblers but disagrees that the assembly labeling requirements are discriminatory as suggested by Paecar. As mentioned earlier, manufacturers of permanent end fittings are not required to label their fittings (and if they do so they bear the additional cost by choice). Therefore, under the new assembly labeling requirements, assemblers who are also permanent end fitting manufacturers and small assemblers who do not manufacture end fittings are on the same footing, both are required to label only once, either by banding or by stamping the end fitting. Of course, independent of any standard, an assembler who produces all components of his product can generally manufacture an assembly at a lower cost than an assembler who purchases components for his product.

Further, from a practical standpoint, the larger assemblers who also supply end fittings to smaller assemblers are not generally in competition with the smaller assemblers. Rather, they deal with large volume users in competition with other large suppliers. The small assemblers are generally only in competition with other small assemblers who are in the same position with respect to cost of assembly labeling. The requirements are, therefore, made final as proposed.

Several commenters pointed out that the notice proposing these amendments deleted an existing exemption from the assembly labeling requirements of the standard. Assemblies that are assembled and installed by a vehicle manufacturer in vehicles manufactured by him are currently excepted from the requirements of paragraph S5.2.4. The deletion in the proposal was inadvertent, and the exception is included in the new paragraph S5.2.4 in this amendment.

General Motors noted that the proposed new paragraph S5.2.4.1 (the stamping option for assembly labeling) did not specify any criteria for the manufacturer's designation, and asked whether the designation could consist of block capital letters or symbols representative of the

assembler. General Motors also requested concurrence in their assumption that, as a manufacturer of both bulk brake hose and hose assemblies, they would be permitted under the stamping option to use one designation for bulk hose and a different designation for hose assemblies. Finally General Motors recommended that the phrase "shall be permanently etched, embossed, or stamped," in proposed paragraph S5.2.4.1 and in existing paragraph S5.2.4, be changed to read, "shall be etched, embossed, or stamped by means of deformation of the material." They argued that the word "permanently" should be deleted since any marking can eventually be obliterated by corrosion, rust, abuse, or other means.

The NHTSA agrees with the clarifications and editorial changes requested by General Motors, and the changes are included in these amendments of the hose assembly and end fitting labeling requirements. The NHTSA concurs with General Motors' assumption that it is permitted to stamp its bulk hose and its assemblies with different designations. The word "permanently" is deleted from paragraphs S5.2.3 and S5.2.4, as it was from paragraph S5.2.2 in a previous notice (41 FR 28505, July 12, 1976).

International Harvester objected to the proposal to exempt hydraulic brake hose used in assemblies with keyed end fittings from the stripping requirement of paragraph S5.2.1. Harvester stated that its hose assemblies with keyed end fittings are designed with different orientations for the left and right hand sides of vehicles. Each could be installed with a 20° twist if inadvertently installed on the wrong side of the vehicle. Since the stripping requirement is intended to prevent twisted installation, this amendment only exempts hose for use in an assembly whose end fittings prevent its installation in a twisted orientation.

Commenters supported the proposed exemption from labeling of end fittings used in factory-made, non-repairable plastic vacuum brake hose assemblies (such as those used by Mercedes-Benz). The proposal is therefore made final.

Commenters also agreed with the proposed exemption of coiled nylon air brake hose from the "length-change" requirement of paragraph S7.3.6. The requirement is therefore amended as proposed.

Paragraphs S7.3.7 and S9.2.9 are amended to exempt wire-reinforced brake hose from the adhesion requirements of the standard, since the adhesion test does not give sufficiently repeatable results in the case of wire-reinforced brake hose. A substitute test for this type hose is under consideration.

The Dairy Equipment Company stated that all assembly labeling requirements were eliminated by a notice published November 26, 1977 (41 FR 52055) which revised paragraphs S12 and S13 of the standard. The Company's interpretation of that amendment is incorrect. As explained in the preamble to that notice, the revision of paragraphs S12 and S13 permits the indefinite use in new vehicles of hose assemblies manufactured prior to the effective date of the labeling requirement for assemblies.

This does not mean that new hose, end fittings and assemblies produced after specific effective dates do not have to meet the labeling requirements of the standard. For example, a hose assembly manufactured today must bear the required assembly labeling even if it is constructed of hose or end fittings that do not have DOT labeling because they were manufactured prior to September 1, 1974.

Since this amendment relieves restrictions, the agency has determined that it will have negligible economic impact. The environmental effects of the amendment should be positive. Elimination of the banding requirement will save approximately 30,000 pounds of material annually.

The engineer and lawyer primarily responsible for the development of this rulemaking document are Fred Redler and Hugh Oates, respectively.

Because these amendments relieve restrictions and create no additional burdens, the National Highway Traffic Safety Administration (NHTSA) finds, for good cause shown, that an immediate effective date is in the public interest.

In consideration of the foregoing, Standard No. 106-74 (49 CFR 571.106-74) is amended. . . .

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued: May 17, 1978.

Howard J. Dugoff  
Acting Administrator

**43 F.R. 22360**  
**May 25, 1978**



## MOTOR VEHICLE SAFETY STANDARD NO. 106

### Brake Hoses

**S1. Scope.** This standard specifies labeling and performance requirements for motor vehicle brake hose, brake hose assemblies, and brake hose end fittings.

**S2. Purpose.** The purpose of this standard is to reduce deaths and injuries occurring as a result of brake system failure from pressure or vacuum loss due to hose or hose assembly rupture.

**S3. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, buses, trailers, and motorcycles, and to hydraulic, air, and vacuum brake hose, brake hose assemblies, and brake hose end fittings for use in those vehicles.

#### **S4. Definitions.**

“Armor” means protective material installed on a brake hose to increase the resistance of the hose or hose assembly to abrasion or impact damage.

“Brake hose” means a flexible conduit, other than a vacuum tubing connector, manufactured for use in a brake system to transmit or contain the fluid pressure or vacuum used to apply force to a vehicle's brakes.

“Brake hose assembly” means a brake hose, with or without armor, equipped with end fittings for use in a brake system, but does not include an air or vacuum assembly prepared by the owner or operator of a used vehicle, by his employee, or by a repair facility, for installation in that used vehicle.

“Brake hose end fitting” means a coupler, other than a clamp, designed for attachment to the end of a brake hose.

“Free length” means the linear measurement of hose exposed between the end fittings of a hose assembly in a straight position.

“Permanently attached end fitting” means an end fitting that is attached by deformation of the fitting about the hose by crimping or swaging, or an end fitting that is attached by use of a sacrificial sleeve or ferrule that requires replacement each time a hose assembly is rebuilt.

“Rupture” means any failure that results in separation of a brake hose from its end fitting or in leakage.

“Vacuum tubing connector” means a flexible conduit of vacuum that (i) connects metal tubing to metal tubing in a brake system, (ii) is attached without end fittings, and (iii) when installed, has an unsupported length less than the total length of those portions that cover the metal tubing.

For hose, a dimensional description such as “1/4-inch hose” refers to the nominal inside diameter. For tubing, a dimensional description such as “1/4-inch tubing” refers to the nominal outside diameter.

#### **S5. Requirements—Hydraulic brake hose, brake hose assemblies, and brake hose end fittings.**

**S5.1 Construction.** Each hydraulic brake hose assembly shall have permanently attached brake hose end fittings which are attached by deformation of the fitting about the hose by crimping or swaging.

#### **S5.2 Labeling.**

**S5.2.1** Each hydraulic brake hose shall have at least two clearly identifiable stripes of at least one-sixteenth of an inch in width, placed on opposite sides of the brake hose parallel to

its longitudinal axis. One stripe may be interrupted by the information required by S5.2.2, and the other stripe may be interrupted by additional information at the manufacturer's option. However, hydraulic brake hose manufactured for use only in an assembly whose end fittings prevent its installation in a twisted orientation in either side of the vehicle, need not meet the requirements of S5.2.1.

**S5.2.2** Each hydraulic brake hose shall be labeled, or cut from bulk hose that is labeled, at intervals of not more than 6 inches, measured from the end of one legend to the beginning of the next, in block capital letters and numerals at least one-eighth of an inch high, with the information listed in paragraphs (a) through (e). The information need not be present on hose after it has become part of a brake hose assembly or after it has been installed in a motor vehicle.

(a) The symbol DOT, constituting a certification by the hose manufacturer that the hose conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of the hose, which shall be filed in writing with: Office of Crash Avoidance, Handling and Stability Division, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. The marking may consist of a designation other than block capital letters required by S5.2.2.

(c) The month, day, and year, or the month and year, of manufacture, expressed in numerals. For example, 10/1/74 means October 1, 1974.

(d) The nominal inside diameter of the hose expressed in inches or fractions of inches.

(e) Either "HR" to indicate that the hose is regular expansion hydraulic hose or "HL" to indicate that the hose is low expansion hydraulic hose.

#### **S5.2.3 "Reserved"**

**S5.2.4** Each hydraulic brake hose assembly, except those assembled and installed by a vehicle manufacturer in vehicles manufactured by him, shall be labeled by means of a band around the brake hose assembly as specified in this paragraph or, at the option of the manufacturer, by means of

labeling as specified in S5.2.4.1. The band may at the manufacturer's option be attached so as to move freely along the length of the assembly, as long as it is retained by the end fittings. The band shall be etched, embossed, or stamped in block capitals letters, numerals, or symbols at least one-eighth of an inch high with the following information:

(a) The symbol DOT constituting certification by the hose assembler that the hose assembly conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of the hose assembly, which shall be filed in writing with: Office of Vehicle Safety Standards, Crash Avoidance Division, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. The designation may consist of block capital letters, numerals, or a symbol.

**S5.2.4.1** At least one end fitting of a hydraulic brake hose assembly shall be etched, stamped, or embossed with a designation at least one-sixteenth of an inch high that identifies the manufacturing of the hose assembly and is filed in accordance with S5.2.4(b).

**S5.3 Test requirements.** A hydraulic brake hose assembly or appropriate part thereof shall be capable of meeting any of the requirements set forth under this heading, when tested under the conditions of S11 and the applicable procedures of S6. However, a particular hose assembly or appropriate part thereof need not meet further requirements after having been subjected to and having met the constriction requirement (S5.3.1) and any one of the requirements specified in S5.3.2 through S5.3.11.

**S5.3.1 Constriction.** Except for that part of an end fitting which does not contain hose, every inside diameter of any section of a hydraulic brake hose assembly shall be not less than 64 percent of the nominal inside diameter of the brake hose.

**S5.3.2 Expansion and burst strength.** The maximum expansion of a hydraulic brake hose assembly at 1,000 psi and 1,500 psi shall not exceed the values specified in Table I (S6.1).

The hydraulic brake hose assembly shall then withstand water pressure of 4,000 psi for 2 minutes without rupture, and shall not rupture at less than 5,000 psi (S6.2).

**S5.3.3 Whip resistance.** A hydraulic brake hose assembly shall not rupture when run continuously on a flexing machine for 35 hours (S6.3).

**S5.3.4 Tensile strength.** A hydraulic brake hose assembly shall withstand a pull of 325 pounds without separation of the hose from its end fittings (S6.4).

**S5.3.5 Water absorption and burst strength.** A hydraulic brake hose assembly, after immersion in water for 70 hours (S6.5), shall withstand water pressure of 4,000 psi for 2 minutes, and then shall not rupture at less than 5,000 psi (S6.2).

**S5.3.6 Water absorption and tensile strength.** A hydraulic brake hose assembly, after immersion in water for 70 hours (S6.5), shall withstand a pull of 325 pounds without separation of the hose from its end fittings (S6.4).

**S5.3.7 Water absorption and whip resistance.** A hydraulic brake hose assembly, after immersion in water for 70 hours (S6.5), shall not rupture when run continuously on a flexing machine for 35 hours (S6.3).

**S5.3.8 Low-temperature resistance.** A hydraulic brake hose conditioned at minus 40°F for 70 hours shall not show cracks visible without magnification when bent around a cylinder as specified in S6.6 (S6.6)

**S5.3.9 Brake fluid compatibility, constriction, and burst strength.** Except for brake hose assemblies designed for use with mineral or petroleum-based brake fluids, a hydraulic brake hose assembly shall meet the constriction requirement of S5.3.1 after having been subjected to a temperature of 200°F for 70 hours while filled with SAE RM-1 compatibility brake fluid (S6.7). It shall then withstand water pressure of 4,000 psi for 2 minutes and thereafter shall not rupture at less than 5,000 psi (S6.2).

**S5.3.10 Ozone resistance.** A hydraulic brake hose shall not show cracks visible under 7-power magnification after exposure to ozone for 70 hours at 140°F (S6.8).

**S5.3.11 End fitting corrosion resistance.** After 24 hours of exposure to salt spray, a hydraulic brake hose end fitting shall show no base metal corrosion on the end fitting surface except where crimping or the application of labeling information has caused displacement of the protective coating (S6.9).

TABLE 1—Maximum Expansion of Free Length Brake Hose, cc/ft.

Hydraulic Brake Hose, inside diameter	Test Pressure			
	1,000 psi		1,500 psi	
	Regular Expansion Hose	Low Expansion Hose	Regular Expansion Hose	Low Expansion Hose
$\frac{1}{8}$ inch or less .....	0.66	0.33	0.79	0.42
$\frac{3}{16}$ inch .....	0.86	0.55	1.02	0.72
$\frac{1}{4}$ inch or more .....	1.04	0.82	1.30	1.17

**S6. Test procedures—Hydraulic brake hose, brake hose assemblies, and brake hose end fittings.**

**S6.1 Expansion test.**

**S6.1.1 Apparatus.** Utilize a test apparatus (as shown in Figure 1) which consists of:

- (a) Source for required fluid pressure;
- (b) Test fluid of water without any additives and free of gases.
- (c) Reservoir for test fluid;
- (d) Pressure gauges;
- (e) Brake hose end fittings in which to mount the hose vertically; and
- (f) Graduated burette with 0.05 cc increments.

**S6.1.2 Preparation.**

- (a) Measure the free length of the hose assembly.
- (b) Mount the hose so that it is in a vertical straight position without tension when pressure is applied.
- (c) Fill the hose with test fluid and bleed all gases from the system.
- (d) Close the valve to the burette and apply 1,500 psi for 10 seconds; then release pressure.

**S6.1.3 Calculation of expansion at 1,000 and 1,500 psi.**

- (a) Adjust the fluid level in the burette to zero.
- (b) Close the valve to the burette, apply pressure at the rate of 15,000 psi per minute, and seal 1,000 psi in the hose (1,500 psi in second series).
- (c) After 3 seconds open the valve to the burette for 10 seconds and allow the fluid in the expanded hose to rise into the burette.
- (d) Repeat the procedure in steps (b) and (c) twice. Measure the amount of test fluid which has accumulated in the burette as a result of the three applications of pressure.
- (e) Calculate the volumetric expansion per foot by dividing the total accumulated test fluid by 3 and further dividing by the free length of the hose in feet.

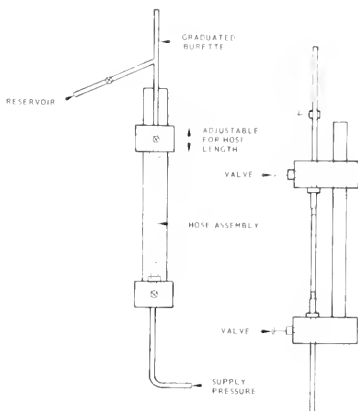


Fig. 1 Expansion Test Apparatus

**S6.2 Burst strength test.**

- (a) Connect the brake hose to a pressure system and fill it completely with water, allowing all gases to escape.
- (b) Apply water pressure of 4,000 psi at a rate of 15,000 psi per minute.
- (c) After 2 minutes at 4,000 psi, increase the pressure at the rate of 15,000 psi per minute until the pressure exceeds 5,000 psi.

**S6.3 Whip resistance test.**

**S6.3.1 Apparatus.** Utilize test apparatus that is dynamically balanced and includes:

- (a) A movable header consisting of a horizontal bar equipped with capped end fittings and mounted through bearings at each end to points 4 inches from the center of two vertically rotating disks whose edges are in the same vertical plane;
- (b) An adjustable stationary header parallel to the movable header in the same horizontal plane as the centers of the disks, and fitted with open end fittings;
- (c) An elapsed time indicator; and
- (d) A source of water pressure connected to the open end fittings.

### S6.3.2 Preparation.

(a) Remove hose armor, and date band, if any.

(b) Measure the hose free length.

(c) Mount the hose in the whip test machine introducing slack as specified in Table II for the size hose tested, measuring the projected length parallel to the axis of the rotating disks. The manufacturer may, at his option, adapt the fitting attachment points to permit mounting hose assemblies equipped with angled or other special fittings in the same orientation as hose assemblies equipped with straight fittings.

### S6.3.3 Operation.

(a) Apply 235 psi water pressure and bleed all gases from the system.

(b) Drive the movable head at 800 rpm.

**S6.4 Tensile strength test.** Utilize a tension testing machine conforming to the requirements of the methods of Verification of Testing Machines (1964 American Society for Testing and Materials, Designation E4), and provided with a recording device to give the total pull in pounds.

**S6.4.1 Preparation.** Mount the hose assembly to ensure straight, evenly distributed machine pull.

**S6.4.2 Operation.** Apply tension at a rate of 1 inch per minute travel of the moving head until separation occurs.

### S6.5 Water absorption sequence tests.

**S6.5.1 Preparation.** Prepare three hose assemblies as follows:

(a) Remove 1½ inches of hose cover, if any, from the center of the hose assemblies without

injury to any reinforcing material or elongation of the hose assemblies.

(b) Measure the free length of the hose assemblies.

### S6.5.2 Immersion and sequence testing.

(a) Immerse the hose assemblies in distilled water for 70 hours.

(b) Thirty minutes after removal from water, conduct tests S6.2, S6.3, and S6.4, using a different hose for each sequence.

### S6.6 Low temperature resistance test.

#### S6.6.1 Preparation.

(a) Remove hose armor, if any, and condition a hose in a straight position in air at minus 40°F for 70 hours.

(b) Condition a cylinder in air at minus 40°F for 70 hours, using a cylinder of 2½ inches in diameter for tests of hose less than ½-inch, 3 inches for tests of ½-inch hose, 3½ inches for tests of ¾-inch and 1-inch hose, and 4 inches for tests of hose greater than 1-inch in diameter.

**S6.6.2 Flexibility testing.** Bend the conditioned hose 180 degrees around the conditioned cylinder at a steady rate in a period of 3 to 5 seconds. Examine without magnification for cracks.

### S6.7 Brake fluid compatibility test.

#### S6.7.1 Preparation.

(a) Attach a hose assembly below a 1-pint reservoir filled with 100 ml of SAE RM-1 compatibility fluid as shown in Figure 2.

TABLE II—Hose Lengths

Free length between end fittings, inches	Slack, inches	
	½-inch hose or less	more than ½-inch hose
8 to 15½, inclusive	1.750	----
10 to 15½, inclusive	----	1.000
Over 15½ to 19 inclusive	1.250	----
Over 19 to 24, inclusive	0.750	----

(b) Fill the hose assembly with brake fluid, seal the lower end, and place the test assembly in an oven in a vertical position.

#### 6.7.2 Oven treatment.

(a) Condition the hose assembly at 200° F for 70 hours.

(b) Cool the hose assembly at room temperature for 30 minutes.

(c) Drain the brake hose assembly, immediately determine that every inside diameter of any section of the hose assembly, except for that part of an end fitting which does not contain hose, is not less than 64 percent of the nominal inside diameter of the hose, and conduct the test specified in S6.2.

**S6.8 Ozone resistance test.** Utilize a cylinder with a diameter eight times the nominal outside diameter of the brake hose excluding armor.

**S6.8.1 Preparation.** After removing any armor, bind a hydraulic brake hose 360° around the cylinder. In the case of hose shorter than the circumference of the cylinder, bend the hose so that as much of its length as possible is in contact.

#### S6.8.2 Exposure to ozone.

(a) Condition the hose on the cylinder in air at room temperature for 24 hours.

(b) Immediately thereafter, condition the hose on the cylinder for 70 hours in an exposure chamber having an ambient air temperature of 104° F during the test and containing air mixed with ozone in the proportion of 50 parts of ozone per 100 million parts of air by volume.

(c) Examine the hose for cracks under 7-power magnification, ignoring areas immediately adjacent to or within the area covered by binding.

**S6.9 End fitting corrosion resistance test.** Utilize the apparatus described in ASTM B117-64, "Salt Spray (Fog) Testing."

**S6.9.1 Construction.** Construct the salt spray chamber so that:

(a) The construction material does not affect the corrosiveness of the fog;

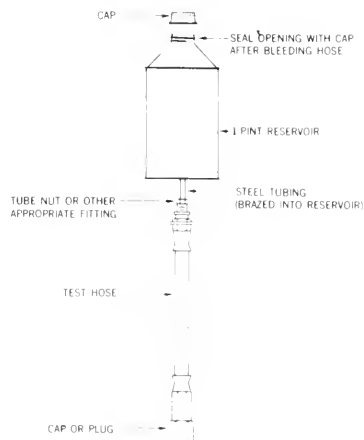


Fig. 2 Brake Fluid Compatibility Apparatus

(b) The hose assembly is supported or suspended 30° from the vertical and parallel to the principal direction of the horizontal flow of fog through the chamber;

(c) The hose assembly does not contact any metallic material or any material capable of acting as a wick;

(d) Condensation which falls from the assembly does not return to the solution reservoir for respraying;

(e) Condensation from any source does not fall on the brake hose assemblies or the solution collectors; and

(f) Spray from the nozzles is not directed onto the hose assembly.

#### S6.9.2 Preparation.

(a) Plug each end of the hose assembly.

(b) Mix a salt solution five parts by weight of sodium chloride to 95 parts of distilled water, using sodium chloride substantially free of nickel and copper, and containing on a dry basis not more than 0.1 percent of sodium iodide and not more than 0.3 percent total impurities. Ensure that the solution is free of suspended solids before the solution is atomized.

(c) After atomization at 95° F ensure that the collected solution is in the pH range of 6.5 to 7.2. Make the pH measurements at 77° F.

(d) Maintain a compressed air supply to the nozzle or nozzles free of oil and dirt and between 10 to 25 psi.

**S6.9.3 Operation.** Subject the brake hose assembly to the salt spray continuously for 24 hours.

(a) Regulate the mixture so that each collector will collect from 1 to 2 ml of solution per hour for each 80 square centimeters of horizontal collecting area.

(b) Maintain exposure zone temperature at 95° F.

(c) Upon completion, remove the salt deposit from the surface of the hoses by washing gently or dipping in clean running water not warmer than 100° F and then drying immediately.

## **S7. Requirements—Air brake hose, brake hose assemblies, and brake hose end fittings.**

**S7.1 Construction.** Each air brake hose assembly shall be equipped with permanently attached brake hose end fittings or reusable brake hose end fittings. Each air brake hose intended for use with reusable end fittings shall conform to the dimensional requirements specified in Table III.

**7.2.1 Hose.** Each air brake hose shall be labeled, or cut from bulk hose that is labeled, at intervals of not more than 6 inches, measured

from the end of one legend to the beginning of the next, in block capital letters and numerals at least one-eighth of an inch high, with the information listed in paragraphs (a) through (e). The information need not be present on hose after it has become part of a brake hose assembly or after it has been installed in a motor vehicle.

(a) The symbol DOT, constituting a certification by the hose manufacturer that the hose conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of the hose, which shall be filed in writing with: Office of Vehicle Safety Standards, Crash Avoidance Division, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. The designation may consist of block capital letters, numerals, or a symbol.

(c) The month, day, and year, or the month and year, of manufacture, expressed in numerals. For example, 10/1/74 means October 1, 1974.

(d) The nominal inside diameter of the hose expressed in inches or fractions of inches, or the nominal outside diameter of plastic tubing expressed in inches or fractions of inches followed by the letters OD. (Examples of inside diameter:  $\frac{1}{8}$ ,  $\frac{1}{2}$  ( $\frac{1}{2}$  SP in the case of  $\frac{1}{2}$ -inch special air brake hose). Example of outside diameter:  $\frac{1}{4}$  OD.)

TABLE III—Air Brake Hose Dimensions for Reusable Assemblies

Size, inches	Inside Diameter Tolerance, inches	TYPE I O.D., inches		TYPE II O.D., inches	
		Min	Max	Min	Max
$\frac{3}{16}$	+ 0.026 - 0.000	0.472	0.510	0.500	0.539
$\frac{1}{4}$	+ 0.031 - 0.000	0.535	0.573	0.562	0.602
$\frac{5}{16}$	+ 0.031 - 0.000	0.598	0.636	0.656	0.695
$\frac{3}{8}$	± 0.023	0.719	0.781	0.719	0.781
$\frac{1}{2}$	+ 0.031 - 0.000	0.714	0.760	0.742	0.789
$\frac{5}{8}$	+ 0.039 - 0.000	0.808	0.854	0.898	0.945
$\frac{3}{4}$	+ 0.042 - 0.000	0.933	0.979	1.054	1.101
$\frac{1}{2}$ special	± 0.031	0.844	0.906	0.844	0.906

(e) The letter "A" shall indicate intended use in air brake systems. In the case of a hose intended for use in a reusable assembly, "AI" or "AII" shall indicate Type I or Type II dimensional characteristics of the hose as described in Table III.

**S7.2.2 End fittings.** Except for an end fitting that is attached by deformation of the fitting about a hose by crimping or swaging, at least one component of each air brake hose fittings shall be etched, embossed, or stamped in block capital letters and numerals at least one-sixteenth of an inch high with the following information:

(a) The symbol DOT, constituting a certification by the manufacturer of that component that the component conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of that component of the fitting, which shall be filed in writing with: Office of Vehicle Safety Standards, Crash Avoidance Division, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. The designation may consist of block capital letters, numerals, or a symbol.

(c) The letter "A" shall indicate intended use in air brake systems. In the case of an end fitting intended for use in a reusable assembly, "AI" or "AII" shall indicate use with Type I or Type II hose, respectively.

(d) The nominal inside diameter of the hose to which the fitting is properly attached expressed in inches or fractions of inches, or the outside diameter of the plastic tubing to which the fitting is properly attached expressed in inches or fractions of inches, followed by the letters OD (See examples in S7.2.1(d)).

**S7.2.3 Assemblies.** Each air brake hose assembly made with end fittings that are attached by crimping or swaging, except those assembled and installed by a vehicle manufacturer in vehicles manufactured by him, shall be labeled by means of a band around the brake hose assembly as specified in this paragraph or, at the option of the manufacturer, by means of labeling as specified in S7.2.3.1. The band may at the manufacturer's option be attached so as to move freely along the length of the assembly, as long as it is retained by the end fittings. The band shall

be etched, embossed, or stamped in block capital letters, numerals, or symbols at least one-eighth of an inch high, with the following information:

(a) The symbol DOT, constituting certification by the hose assembler that the hose assembly conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of the hose assembly, which shall be filed in writing with: Office of Vehicle Safety Standards, Crash Avoidance Division, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. The designation may consist of block capital letters, numerals, or a symbol.

**S7.2.3.1** At least one end fitting of an air brake hose assembly made with end fittings that are attached by crimping or swaging shall be etched, stamped, or embossed with a designation at least one-sixteenth of an inch high that identifies the manufacturer of the hose assembly and is filed in accordance with S7.2.3(b).

**S7.3 Test requirements.** Each air brake hose assembly or appropriate part thereof shall be capable of meeting any of the requirements set forth under this heading, when tested under the conditions of S11 and the applicable procedures of S8. However, a particular hose assembly or appropriate part thereof need not meet further requirements after having met the constriction requirement (S7.3.1) and then having been subjected to any one of the requirements specified in S7.3.2 through S7.3.13.

**S7.3.1 Constriction.** Except for that part of an end fitting which does not contain hose, every inside diameter of any section of an air brake hose assembly shall be not less than 66 percent of the nominal inside diameter of the brake hose.

**S7.3.2 High temperature resistance.** An air brake hose shall not show external or internal cracks, charring, or disintegration visible without magnification when straightened after being bent for 70 hours at 212° F over a cylinder having the radius specified in Table IV for the size of hose tested (S8.1).



**S7.3.3 Low temperature resistance.** The outer cover of an air brake hose shall not show cracks visible without magnification as a result of conditioning at minus 40° F for 70 hours when bent around a cylinder having the radius specified in Table IV for the size of hose tested (S8.2).

**S7.3.4 Oil resistance.** After immersion in ASTM No. 3 oil for 70 hours at 212° F the volume of a specimen prepared from the inner tube and cover of an air brake hose shall not increase more than 100 percent (S8.3).

**S7.3.5 Ozone resistance.** The outer cover of an air brake hose shall not show cracks visible under 7-power magnification after exposure to ozone for 70 hours at 104° F (S8.4).

**S7.3.6 Length change.** An airbrake hose shall not contract in length more than 7 percent nor elongate more than 5 percent when subjected to air pressure of 200 psi (S8.5). "(other than a coiled nylon tube for use in an assembly that meets the requirements of § 393.45 of this title)" followed the phrase "An air brake hose."

**§ 7.3.7 Adhesion.** "Except for hose reinforced by wire," an airbrake hose shall withstand a tensile force of 8 pounds per inch of length before separation of adjacent layers (S8.6).

**S7.3.8 Air pressure.** An air brake hose assembly shall contain air pressure of 200 psi for 5 minutes without loss of more than 5 psi (S8.7).

**S7.3.9 Burst strength.** An air brake hose assembly shall not rupture when exposed to hydrostatic pressure of 800 psi (S8.8).

**S7.3.10 Tensile strength.** An air brake hose assembly (other than a coiled nylon tube assembly which meets the requirements of § 393.45 of

this title) designed for use between frame and axle or between a towed and a towing vehicle shall withstand, without separation of the hose from its end fittings, a pull of 250 pounds if it is ¼ in. or less in nominal internal diameter, or a pull of 325 pounds if it is larger than ¼ in. in nominal internal diameter. An air brake hose assembly designed for use in any other application shall withstand, without separation of the hose from its end fitting, a pull of 50 pounds if it is ¼ in. or less in nominal internal diameter, 150 pounds if it is ¾ or ½ in. in nominal internal diameter, or 325 pounds if it is larger than ½ in. in nominal internal diameter (S8.9).

**S7.3.11 Water absorption and tensile strength.** After immersion in distilled water for 70 hours (S8.10), an air brake hose assembly (other than a coiled tube assembly which meets the requirements of § 393.45 of this title) designed for use between frame and axle or between a towed and a towing vehicle shall withstand without separation of the hose from its end fittings a pull of 250 pounds if it is ¼ in. or less in nominal internal diameter, or a pull of 325 pounds if it is larger than ¼ in. in nominal internal diameter. After immersion in distilled water for 70 hours (S8.10), an air brake hose assembly designed for use in any other application shall withstand without separation of the hose from its end fittings a pull of 50 pounds if it is ¼ in. or less in nominal internal diameter, 150 pounds if it is ¾ or ½ in. in nominal internal diameter, or 325 pounds if it is larger than ½ in. in nominal internal diameter (S8.9).

**S7.3.12 Zinc chloride resistance.** The outer cover of an air brake hose shall not show cracks visible under 7-power magnification after immersion in a 50-percent zinc chloride aqueous solution for 200 hours (S8.11).

TABLE IV—Air Brake Hose Diameters and Test Cylinder Radii

Hose, nominal diameter in inches	⅛	⅜	¼	⅝	¾	1⅜	7/16	½	⅝
Radius of test cylinder in inches	1½	2	2½	3	3½	3¾	4	4	4½

**S7.3.13 End fitting corrosion resistance.** After 24 hours of exposure to spray, air brake hose end fittings shall show no base metal corrosion on the end fitting surface except where crimping or the application of label information causes a displacement of the protective coating.

**S8. Test procedures—Air brake hose, brake hose assemblies, and brake hose end fittings.**

**S8.1 High temperature resistance test.**

(a) Utilize a cylinder having the radius indicated in Table IV for the size of hose tested.

(b) Bind the hose around the cylinder and condition it in an air oven for 70 hours at 212°F.

(c) Cool the hose to room temperature, remove it from the cylinder and straighten it.

(d) Without magnification, examine the hose externally and cut the hose lengthwise and examine the inner tube.

**S8.2 Low temperature resistance test.**

(a) Utilize a cylinder having the radius indicated in Table IV for the size of hose tested.

(b) Condition the cylinder and the brake hose, in a straight position, in a cold box at minus 40° F for 70 hours.

(c) With the hose and cylinder at minus 40° F, bend the hose 180 degrees around the cylinder at a steady rate in a period of 3 to 5 seconds.

**S8.3 Oil resistance test.** Utilize three test specimens and average the results.

**S8.3.1 Preparation.** Fashion a test specimen by cutting a rectangular block 2 inches long and not less than one-third of an inch in width, having a thickness of not more than one-sixteenth inch, from the brake hose and buff the specimen on both faces to ensure smooth surfaces.

**S8.3.2 Measurement.**

(a) Weigh each specimen to the nearest milligram in air (W<sub>1</sub>) and in distilled water (W<sub>2</sub>) at room temperature. If wetting is necessary to remove air bubbles, dip the specimen in acetone and thoroughly rinse it with distilled water.

(b) Immerse each specimen in ASTM No. 3 oil for 70 hours at 212° F and then cool in

ASTM No. 3 oil at room temperature for 30 to 60 minutes.

(c) Dip the specimen quickly in acetone and blot it lightly with filter paper.

(d) Weigh each specimen in a tared weighing bottle (W<sub>3</sub>) and in distilled water (W<sub>4</sub>) within five minutes of removal from the cooling liquid.

(e) Calculate the percentage increase in volume as follows:

$$\text{Percent of increase} = \frac{(W_3 - W_4) - (W_1 - W_2)}{(W_1 - W_2)} \times 100$$

**S8.4 Ozone resistance test.** Conduct the test specified in S6.8 using air brake hose.

**S8.5 Length change test.**

(a) Position a test hose in a straight, horizontal position, and apply air pressure of 10 psi thereto.

(b) Measure the hose to determine original free length.

(c) Without releasing the 10 psi, raise the air pressure to the test hose to 200 psi.

(d) Measure the hose under 200 psi to determine final free length. An elongation or contraction is an increase or decrease respectively, in the final free length from the original free length of the hose.

**S8.6 Adhesion test.**

**S8.6.1 Apparatus.** Utilize a power-driven apparatus of the inclination balance or pendulum type which is constructed so that:

(a) The recording head includes a freely rotating form with an outside diameter substantially the same as the inside diameter of the hose specimen to be placed on it;

(b) The freely rotating form is mounted so that its axis of rotation is in the plane of the ply being separated from the specimen and so that the applied force is perpendicular to the tangent of the specimen circumference at the line of separation;

(c) The rate of travel of the power-actuated grip is a uniform 1 inch per minute and the capacity of the machine is such that maximum applied tension during the test is not more than 85 percent nor less than 15 percent of the machine's rated capacity;

(d) The machine operates with no device for maintaining maximum load indication, and in a pendulum type machine, the weight level swings as a free pendulum without engagement of pawls; and

(e) The machine produces a chart with inches of separation as one coordinate and applied tension as the other.

#### S8.6.2 Preparation.

(a) Cut a test specimen of 1 inch or more in length from the hose to be tested and cut the layer to be tested of that test specimen longitudinally along its entire length to the level of contact with the adjacent layer.

(b) Peel the layer to be tested from the adjacent layer to create a flap large enough to permit attachment of the power-actuated clamp of the apparatus.

(c) Mount the test specimen on the freely rotating form with the separated layer attached to the power-actuated clamp.

#### S8.6.3 Operation. Reserved

#### S8.6.4 Calculations.

(a) The adhesion value shall be the minimum force recorded on the portion of the chart corresponding to the actual separation of the part being tested.

(a) Express the force in pounds per inch of length.

#### S8.7 Air pressure test.

(a) Connect the air brake hose assembly to a source of air pressure.

(b) Apply 200 psi air pressure to the hose and seal the hose from the source of air pressure.

(c) After 5 minutes, determine the air pressure remaining in the test specimen.

#### 8.8 Burst strength test.

(a) Utilize an air brake hose assembly.

(b) Fill the hose assembly with water, allowing all gases to escape. Apply water pressure at a uniform rate of increase of approximately 1,000 psi per minute until the hose ruptures.

**S8.9 Tensile strength test.** Utilize a tension testing machine conforming to the requirements of the Methods of Verification of Testing Machines (1964 American Society for Testing and Materials, Designation E4), and provided with a recording device to register total pull in pounds.

(a) Attach an air brake hose assembly to the testing machine to permit straight, even, machine-pull on the hose.

(b) Apply tension at a rate of 1 inch per minute travel of the moving head until separation occurs.

TABLE V—Vacuum Brake Hose Test Requirements

Hose—Inside diameter, ins.	High Temperature Resistance		Low Temperature Resistance		Bend		Deformation
	Hose Length, inches	Radius of Cylinder, inches	Hose Length, inches	Radius of Cylinder, inches	Hose Length, inches	Max. Collapse of OD, inches	Collapsed ID (dimension D), inches
$\frac{1}{32}$	8	$1\frac{1}{2}$	$17\frac{1}{2}$	3	7	$\frac{1}{164}$	$\frac{3}{16}$
$\frac{1}{4}$	9	$1\frac{1}{2}$	$17\frac{1}{2}$	3	8	$\frac{3}{32}$	$\frac{1}{16}$
$\frac{3}{32}$	9	$1\frac{3}{4}$	19	$3\frac{1}{2}$	9	$\frac{1}{164}$	$\frac{5}{16}$
$\frac{11}{32}$	9	$1\frac{3}{4}$	19	$3\frac{1}{2}$	11	$\frac{1}{164}$	$\frac{5}{16}$
$\frac{3}{8}$	10	$1\frac{3}{4}$	19	$3\frac{1}{2}$	12	$\frac{5}{32}$	$\frac{3}{32}$
$\frac{7}{16}$	11	2	$20\frac{1}{2}$	4	14	$\frac{1}{164}$	$\frac{5}{16}$
$\frac{15}{32}$	11	2	$20\frac{1}{2}$	4	14	$\frac{1}{164}$	$\frac{5}{16}$
$\frac{1}{2}$	11	2	$20\frac{1}{2}$	4	16	$\frac{7}{32}$	$\frac{3}{8}$
$\frac{5}{8}$	12	$2\frac{1}{4}$	22	$4\frac{1}{2}$	22	$\frac{7}{32}$	$\frac{5}{16}$
$\frac{3}{4}$	14	$2\frac{1}{2}$	24	5	28	$\frac{7}{32}$	$\frac{3}{16}$
1.0	16	$3\frac{1}{4}$	$28\frac{1}{2}$	$6\frac{1}{2}$	36	$\frac{9}{32}$	$\frac{1}{4}$

**S8.10 Water absorption and tensile strength test.** Immerse an air brake hose assembly in distilled water at room temperature for 70 hours. Thirty minutes after removal from the water, conduct the test specified in S8.9.

**S8.11 Zinc chloride resistance test.** Immerse an air brake hose in a 50-percent zinc chloride aqueous solution at room temperature for 200 hours. Remove it from the solution and examine it under 7-power magnification for cracks.

**S8.12 End fitting corrosion resistance test.** Conduct the test specified in S6.9 using an air brake hose assembly.

**S9. Requirements—vacuum brake hose, brake hose assemblies, and brake hose end fittings.**

**9.1 Labeling.**

**S9.1.1 Hose.** Each vacuum brake hose shall be labeled, or cut from bulk hose that is labeled, at intervals of not more than 6 inches, measured from the end of one legend to the beginning of the next, in block capital letters and numerals at least one-eighth of an inch high, with the information listed in paragraphs (a) through (e). The information need not be present on hose after it has become part of a brake hose assembly or after it has been installed in a motor vehicle.

(a) The symbol DOT, constituting a certification by the hose manufacturer that the hose conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of the hose, which shall be filed in writing with: Office of Vehicle Safety Standards, Crash Avoidance Division, National Highway Traffic Safety Administration, 400 Seventh Street S.W., Washington, D.C. 20590. The designation may consist of block capital letters, numerals, or a symbol.

(c) The month, day, and year, or the month and year, of manufacture, expressed in numerals. For example, 10/1/74 means October 1, 1974.

(d) The nominal inside diameter of the hose expressed in inches or fractions of inches, or the nominal outside diameter of plastic tubing expressed in inches or fractions of inches followed

by the letters OD (Example of inside diameter: 7/32, 1/4. Example of outside diameter: 1/4 OD.)

(e) The letters "VL" or "VH" shall indicate that the component is a light-duty vacuum brake hose or heavy-duty vacuum brake hose, respectively.

**S9.1.2 End Fittings.** Except for an end fitting that is attached by heat shrinking or by interference fit with plastic vacuum hose or that is attached by deformation of the fitting about a hose by crimping or swaging, at least one component of each vacuum brake hose fitting shall be etched, embossed, or stamped in block capital letters and numerals at least one-sixteenth of an inch high with the following information:

(a) The symbol DOT, constituting a certification by the manufacturer of that component that the component conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of that component of the fitting, which shall be filed in writing with: Office of Vehicle Safety Standards, Crash Avoidance Division, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. The designation may consist of block capital letters, numerals, or a symbol.

(c) The letters "VL" or "VH" shall indicate that the end fitting is intended for use in a light-duty or heavy-duty vacuum brake system, respectively.

(d) The nominal inside diameter of the hose to which the fitting is properly attached expressed in inches or fractions of inches, or the outside diameter of the plastic tubing to which the fitting properly attached expressed in inches or fractions of inches followed by the letters OD (See examples in S9.1.1 (d)).

**S9.1.3 Assemblies.** Each vacuum brake hose assembly made with end fittings that are attached by crimping or swaging and each plastic tube assembly made with end fittings that are attached by heat shrinking or dimensional interference fit, except those assembled and installed by a vehicle manufacturer in vehicles manufactured by him, shall be labeled by means of a band around the brake hose assembly as specified in this para-

graph or, at the option of the manufacturer, by means of labeling as specified in S9.1.3.1 The band may at the manufacturer's option attached so as to move freely along the length of the assembly, as long as it is retained by the end fittings. The band shall be etched, embossed, or stamped, in block capital letters and numerals at least one-eighth of an inch high, with the following information:

(a) The symbol DOT, constituting certification by the hose assembler that the hose assembly conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of the hose assembly, which shall be filed in writing with: Office of Vehicle Safety Standards, Crash Avoidance Division, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. The designation may consist of block capital letters, numerals, or a symbol.

**S9.1.3.1** At least one end fitting of a vacuum brake hose assembly made with end fittings that are attached by crimping or swaging, or of a plastic tubing assembly made with end fittings that are attached by heat shrinking or dimensional interference fit shall be etched, stamped, or embossed with a designation at least one-sixteenth of an inch high that identifies the manufacturer of the hose assembly and is filed in accordance with S9.1.3(b).

**S9.2 Test requirements.** Each vacuum brake hose assembly or appropriate part thereof shall be capable of meeting any of the requirements set forth under this heading, when tested under the conditions of S11 and the applicable procedures of S10. However, a particular hose assembly or appropriate part thereof need not meet further requirements after having met the constriction requirement (S9.2.1) and then having been subjected to any one of the requirements specified in S9.2.2 through S9.2.11.

**S9.2.1 Constriction.** Except for that part of an end fitting which does not contain hose, every inside diameter of any section of a vacuum brake hose assembly shall be not less than 75 percent of the nominal inside diameter of the hose if for

heavy duty, or 70 percent of the nominal inside diameter of the hose if for light duty.

**S9.2.2 High temperature resistance.** A vacuum brake hose shall not show external or internal cracks, charring, or disintegration visible without magnification when straightened after being bent for 70 hours at 212° F over a cylinder having the radius specified in Table V for the size of hose tested (S10.1).

**S9.2.3 Low temperature resistance.** A vacuum brake hose shall not show cracks visible without magnification after conditioning at minus 40° F for 70 hours when bent around a cylinder having the radius specified in Table V for the size hose Tested (S10.2).

**S9.2.4 Ozone resistance.** A vacuum brake hose shall not show cracks visible under 7-power magnification after exposure to ozone for 70 hours (S10.3).

**S9.2.5 Burst strength.** A vacuum brake hose shall not rupture under hydrostatic pressure of 350 psi (S10.4).

**S9.2.6 Vacuum.** The collapse of the outside diameter of a vacuum brake hose under internal vacuum of 26 inches of Hg for five minutes shall not exceed one-sixteenth of an inch (S10.5).

**S9.2.7 Bend.** The collapse of the outside diameter of a vacuum brake hose at the middle point of the test length when bent until the ends touch shall not exceed the values given in Table V for the size of hose tested (S10.6).

**S9.2.8 Swell.** Following exposure to Reference Fuel A, every inside diameter of any section of a vacuum brake hose shall be not less than 75 percent of the nominal inside of the hose if for heavy duty, or 70 percent of the nominal inside diameter of the hose if for light duty. The vacuum brake hose shall show no leakage and there shall be no separation of the inner tube from the fabric reinforcement of the hose in a vacuum test of 26 inches of Hg for 10 minutes (S10.7).

**S9.2.9 Adhesion.** "Except for hose reinforced by wire," a vacuum brake hose shall withstand a force of 8 pounds per inch of length before separation of adjacent layers (S10.8).

**S9.2.10 Deformation.** A vacuum brake hose shall return to 90 percent of its original outside diameter within 60 seconds after five applications of force as specified in S10.9, except that a wire-reinforced hose need only return to 85 percent of its original outside diameter. In the case of heavy-duty hose the first application of force shall not exceed a peak value of 70 pounds, and the fifth application of force shall reach a

peak value of at least 40 pounds. In the case of light-duty hose the first application of force shall not exceed a peak value of 50 pounds, and the fifth application of force shall reach a peak value of at least 20 pounds (S10.9).

**S9.2.11 End fitting corrosion resistance.** After 24 hours of exposure to salt spray, vacuum brake hose end fittings shall show no base metal corrosion of the end fitting surface except where crimping or the application of labeling information has caused displacement of the protective coating.

**S10. Test procedures—Vacuum brake hose, brake hose assemblies, and brake hose and fittings.**

**S10.1 High temperature resistance test.** Conduct the test specified in S8.1 using vacuum brake hose with the cylinder radius specified in Table V for the size of hose tested.

**S10.2 Low temperature resistance test.** Conduct the test specified in S8.2 using vacuum brake hose with the cylinder radius specified in Table V for the size of hose tested.

**S10.3 Ozone resistance test.** Conduct the test specified in S6.8 using vacuum brake hose.

**S10.4 Burst strength test.** Conduct the test specified in S8.8 using vacuum brake hose.

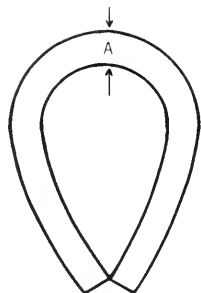


Fig 3—Bend Test of Vacuum Brake Hose.

TABLE VI  
Dimensions of Test Specimen and Feeler Gage for Deformation Test

Inside Diameter of Hose (inch)	Specimen Dimensions (see Fig. 4)		Feeler Gage Dimensions	
	D (inch)	L (inch)	Width (inch)	Thickness (inch)
$\frac{1}{32}$	$\frac{3}{16}$	1	$\frac{1}{8}$	$\frac{3}{16}$
$\frac{1}{4}$	$\frac{1}{16}$	1	$\frac{3}{8}$	$\frac{1}{16}$
$\frac{3}{32}$	$\frac{1}{16}$	1	$\frac{3}{8}$	$\frac{1}{16}$
$\frac{1}{2}$	$\frac{3}{16}$	1	$\frac{3}{16}$	$\frac{3}{16}$
$\frac{5}{8}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$\frac{7}{8}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$\frac{15}{16}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$1\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$1\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$2\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$2\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$2\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$3\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$3\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$3\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$4\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$4\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$4\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$5\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$5\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$5\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$6\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$6\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$6\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$7\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$7\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$7\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$8\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$8\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$8\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$9\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$9\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$9\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$10\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$10\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$10\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$11\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$11\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$11\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$12\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$12\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$12\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$13\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$13\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$13\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$14\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$14\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$14\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$15\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$15\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$15\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$16\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$16\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$16\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$17\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$17\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$17\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$18\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$18\frac{1}{2}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$18\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$19\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
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$57\frac{3}{4}$	$\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$
$58\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{3}{$	

**S10.5 Vacuum test.** Utilize a 12-inch vacuum brake hose assembly sealed at one end.

(a) Measure the hose outside diameter.

(b) Attach the hose to a source of vacuum and subject it to a vacuum of 26 inches of Hg for 5 minutes.

(c) Measure the hose to determine the minimum outside diameter while the hose is still subjected to vacuum.

#### § 10.6 Bend test.

(a) Bend a vacuum brake hose, of the length prescribed in Table V, in the direction of its normal curvature until then ends just touch, as shown in Figure 3.

(b) Measure the outside diameter of the specimen at point A before and after bending.

(c) The difference between the two measurements is the collapse of the hose outside diameter on bending.

#### S10.7 Swell test.

(a) Fill a specimen of vacuum brake hose 12 inches long with Reference Fuel A as described in the Method of Test for Change in Properties of Elastomeric Vulcanizers Resulting From Immersion in Liquids (1964 American Society for Testing and Materials Designation D471).

(b) Maintain reference fuel in the hose under atmospheric pressure at room temperature for 48 hours.

(c) Remove fuel and determine that every inside diameter of any section of the brake hose is not less than 75 percent of the nominal inside diameter of the hose for heavy-duty hose and 70 percent of the nominal inside diameter of the hose for light-duty hose.

(d) Subject the hose specimen to a vacuum of 26 inches of Hg for 10 minutes.

**S10.8 Adhesion test.** Conduct the test specified in S8.6 using vacuum brake hose.

**S10.9 Deformation test.** Table VI specifies the test specimen dimensions.

**S10.9.1 Apparatus.** Utilize a compression device, equipped to measure force of at least 100 pounds, and feeler gauges of sufficient length to be passed completely through the test specimen.

#### S10.9.2 Operation.

(a) Position the test specimen longitudinally in the compression device with the fabric laps not in the line of the applied pressure.

(b) Apply gradually increasing force to the test specimen to compress its inside diameter to that specified in Table VI (dimension D of Figure 4) for the size of hose tested.

(c) After 5 seconds release the force and record the peak load applied.

(d) Repeat the procedure four times permitting a 10-second recovery period between load applications.

#### S10.10 End fitting corrosion resistance test.

Conduct the test specified in S6.9 using a vacuum brake hose assembly.

**S11. Test conditions.** Each hose assembly or appropriate part thereof shall be able to meet the requirements of S5, S7, and S9 under the following conditions.

**S11.1** The temperature of the testing room is 75° F.

**S11.2** Except for S6.6, S8.2, and S10.2, the test samples are stabilized at test room temperature prior to testing.

**S11.3** The brake hoses and brake hose assemblies are at least 24 hours old, and unused.

**S12.** Notwithstanding any other provision of this standard, a brake hose assembly shall meet each requirement of this standard, except that the assembly may be constructed of brake hose which meets every requirement of the standard for hose other than the hose labeling requirements of S5.2, S7.2, and S9.1, and the assembly may be constructed of end fittings which meet every requirement of the standard for end fittings other

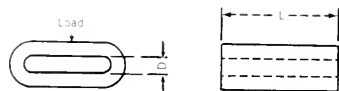


Fig. 4 Deformed Specimen of Vacuum Brake Hose

than the end fitting labeling requirements of S5.2, S7.2, and S9.1.

**S13.** Notwithstanding any other provision of this standard, a vehicle to which this standard applies shall be equipped with brake hose, brake hose end fittings, and brake hose assemblies that meet each requirement of this standard, with the following exceptions:

(a) The vehicle may be equipped with brake hose that meets every requirement of the standard for hose other than the hose labeling requirements of S5.2, S7.2, and S9.1;

(b) The vehicle may be equipped with end fittings that meet every requirement of the standard for end fittings other than the end fitting labeling requirements of S5.2, S7.2, and S9.1; and

(c) The vehicle may be equipped with brake hose assemblies that meet every requirement of the standard for assemblies other than the assembly labeling requirements of S5.2, S7.2, and S9.1.

**38 F.R. 31302  
November 13, 1973**



**MOTOR VEHICLE SAFETY STANDARD NO. 107**  
**Reflecting Surfaces—Passenger Cars, Multipurpose Passenger**  
**Vehicles, Trucks, and Buses**

**S1. Purpose and scope.** This standard specifies reflecting surface requirements for certain vehicle components in the driver's field of view.

**S2. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses.

**S3. Definitions.** "Field of view" means the area forward of a lateral vertical plane which is located tangent to the rearmost boundary of the SAE 99th percentile eye range contour of SAE Recommended Practice J941, November 1965. "Specular gloss" means the luminous fractional reflectance of a specimen at the specular direction.

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**S4. Requirements.** The specular gloss of the surface of the materials used for the following bright metal components in the driver's field of view shall not exceed 40 units when measured by the 20° method of ASTM Standard D523-62T, June 1962—

- (a) Windshield wiper arms and blades;
- (b) Inside windshield mouldings;
- (c) Horn ring and hub of steering wheel assembly; and
- (d) Inside rearview mirror frame and mounting bracket.

**32 F.R. 2411**  
**February 3, 1967**



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

### Lamps, Reflective Devices, and Associated Equipment—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, Trailers and Motorcycles (Docket No. 69-18)

On January 3, 1970, a proposal to amend Federal Motor Vehicle Safety Standard No. 108 (Docket No. 69-18) was published in the *Federal Register* (35 F.R. 106). Comments were requested on 25 proposed amendments.

Interested persons have been afforded an opportunity to participate in the rulemaking process and their comments have been considered in the amendments published today. Except as otherwise noted, the amendments are effective July 1, 1971. The amendments are discussed below in the order in which the proposals were published. Unless otherwise indicated, there were no significant objections to the proposals that are being adopted.

(a) It was proposed that Standard No. 108 be extended to include requirements for replacement lighting equipment on vehicles manufactured to comply with Standard No. 108, and all replacement sealed beam headlamp units, lamp bulbs, and plastic lenses.

The proposal to include replacement equipment on vehicles manufactured on or after the effective date of the standard (July 1, 1971) has been adopted. However, the proposal to include all replacement sealed beam headlamp units, lamp bulbs, and plastic lenses on vehicles manufactured prior to that date has been deferred because of the difficulties involved in retrofitting vehicles that were not originally manufactured to conform to Standard No. 108. Further study is necessary of the problems, leadtime, and costs

involved in designing and testing replacement equipment for older vehicles that meets the standards required of motor vehicles manufactured today.

(b) The present intermediate side marker device requirement covering vehicles 30 feet or more in overall length, and 80 inches and more in overall width, has been extended to cover vehicles of lesser width.

Commenters requested that the overall length of a trailer be interpreted to exclude the length of the trailer tongue. However, it has been determined that when the rear of a trailer is 30 feet or more from the towing vehicle, intermediate side marker devices are warranted, regardless of the length of the trailer tongue.

(c) SAE Standard J594d, "Reflex Reflectors", has replaced J594c as the basic reference for this item of lighting equipment. Some commenters felt that Class B reflectors (eliminated in J594d) should still be permitted for motorcycles, but the Bureau believes that a motor vehicle whose conspicuity is already marginal should be required to have Class A reflectors.

(d) Self-canceling turn signal operating units will be required on all vehicles less than 80 inches in overall width. One commenter requested excluding all trucks, truck tractors, and commercial vehicles regardless of vehicle width, and several commenters requested the elimination of the requirement for cancellation by steering wheel rotation.

Since the operation of vehicles less than 80 inches in overall width is similar to that of passenger vehicles and other vehicles of lesser width are operated by drivers other than pro-

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Individual copies of Motor Vehicle Safety Standards may be obtained from the National Highway Safety Bureau's General Services Division, Room 5111C, Nassif Building, 400 Seventh Street SW., Washington, D.C. 20590.

professionals, their exclusion from this requirement is not warranted.

The Bureau is studying automatic cancellation by time or distance, or both, but current evidence indicates that these methods, given the state of the art, are inferior to cancellation by steering wheel rotation.

(e) As proposed, amber has been eliminated as an optional color of the stop lamp.

(f) The minimum candlepower of any separately mounted stoplamp will equal that of a Class A turn signal lamp.

Many commenters requested a longer leadtime to comply. The requests have been found reasonable, and good cause has been shown for an effective date of January 1, 1973. Other comments suggested consideration of stop lamp candlepower in connection with dual intensity signals, allowance for multiple compartment lamps, and retention of the present Class B intensity for motorcycle stop lamps.

Dual intensity signals have not been proposed, and since time is required for development and implementation of such a proposal, a requirement for increased minimum candlepower in stop lamps cannot be deferred. No justification has been found for not requiring Class A intensity for motorcycle stop lamps. The standard is therefore being amended as proposed, with clarifying provisions for multiple compartment stop lamps.

(g) It was proposed that motorcycles should be equipped with turn-signal lamps, that there be a maximum candlepower limitation on amber rear-mounted lamps, and that minimum photometric output of head and tail lamps at engine idle speeds should be specified.

Several comments objected to the maximum candlepower proposal and the mounting requirements specified in the proposed Table IV. Also, comments indicated potential problems if minimum photometric output were specified, suggesting instead reference to SAE Recommended Practice J392, "Motorcycle and Motor Driven Cycle Electrical System Maintenance of Design Voltage", December 1969.

Glare candlepower tests on signal lamps installed on the rear of motor vehicles have consistently indicated that a specification in excess of 300 candlepower for both red and amber

lamps is not desirable. A manufacturer encountering problems of exceeding this maximum with amber lamps has the option of using red lamps, which have a lower minimum required candlepower.

The detection and interpretation of turn signal lamps improves as they are mounted farther away from the centerline of the vehicle and from other lamps. Some motorcycle manufacturers, recognizing this fact, have installed the turn signal lamps in the ends of the handlebars, exceeding the requirements adopted in the amendment. The mounting requirements for these lamps specified in Table IV are considered reasonable and practicable for motorcycles.

The standard is being amended as proposed, except that minimum photometric output of headlamps and taillamps at engine idle speeds is not specified. Minimum photometrics are currently being studied for further rulemaking. Since an incorporation by reference to SAE Recommended Practice J392 was not proposed, it is beyond the scope of this rulemaking to incorporate it in the amendment.

(h) Aging and weathering requirements for plastic materials used for optical parts are specified. Although the comments generally supported this revision, many requested a more realistic test than continuous operation of stop and backup lamps in an oven for 1 hour to determine lens warpage. Accordingly, the amendment requires a cycle of operation of 10 minutes' duration followed by 10 minutes' rest during the 1 hour test. Comments suggesting extending the 2-year outdoor exposure test to 3 years and additional oven test details were beyond the scope of the proposal, and will be considered in future rulemaking actions.

(i) As proposed, the words "it is recommended that," "recommendations," or "should be" appearing in any referenced and subreferenced SAE standard shall be read as setting forth mandatory requirements, with minor exceptions covering certain aspects of school bus warning lamps.

(j) Specific tolerances for mounting lamps and reflectors "as far apart as practicable" were proposed, but have not been adopted.

Several comments recommended adopting the ISO (International Standards Organization) requirements that lamps and reflectors be mounted within 16 inches of the edge of the vehicle. Others stated that the Bureau did not have the authority to establish tolerances.

Vehicles having lamps located in conformance with ISO regulations may create problems of distance judgment resulting in driver error. Lamps could be mounted in a range from a minimum of 25 inches apart on small imported passenger cars to a maximum of 74 inches apart on standard domestic cars.

The location of lamps and reflectors is clearly safety related, as it facilitates clearance and distance estimation, detection of signals, and similar functions. The Bureau therefore has the authority to establish horizontal mounting tolerances, analogous to the vertical tolerances that have already been established.

Major changes in lighting requirements may result in the rulemaking action proceeding under Docket No. 69-19. New requirements such as horizontal mounting tolerances need relatively long leadtimes. Accordingly, this proposal has not been adopted, and the requirement for lamps and reflectors is still that they be located "as far apart as practicable."

(k) Lamps and reflectors must meet specified visibility angles when mounted on the vehicle.

Some comments pointed out that when special equipment such as mirrors and snow plows is mounted on the vehicle visibility and photometric test angles may not be met. The amendment allows compliance with this requirement by means of auxiliary lighting devices.

Items (l) through (o) represents proposals which were adopted:

(l) The axis of side reflex reflectors for the photometric test has been defined.

(m) The minimum mounting height for reflectors mounted on the rear of truck tractor cabs will be 4 inches above the height of the rear tires.

(n) Combination turn signal and hazard warning signal flashers will meet the requirements applicable to each, when tested in sequence. Manufacturers of turn signal and hazard warning signal flashers have commented that economic factors and the current state of the art in manu-

facturing lamps preclude a quality level that would totally eliminate occasional random failures. This condition is reflected in the language in Standard No. 108 that lighting equipment "shall be designed to conform" to the stated requirements. The SAE recognizes the problem by specifying an allowable percentage of failures in SAE Standards J590b, "Automotive Turn signal Flasher," and J945, "Vehicular Hazard Warning Signal Flasher." Such a provision is inappropriate, however, for regulatory purposes. It is doubtful that specific failure allowance in a standard would correspond with the statutory mandate that "No person shall manufacture for sale \* \* \* any motor vehicle or item of motor vehicle equipment \* \* \* unless it is in conformity with [any applicable] standard". (15 U.S.C. 1397(a)(1)). From a practical standpoint, such a provision would tend to make the requirement unenforceable except in extreme cases, since failures within a single lot are statistically inconclusive in determining the extent of failures in overall production. Therefore the sampling provisions of the two SAE Standards, originally incorporated by reference in Standard No. 108, are expressly omitted from the standard in this issuance. The omission should not cause a hardship, since the "designed to conform" language has been retained.

(o) SAE Recommended Practice J565b, "Semi-Automatic Headlamp Beam Switching Devices", has replaced J565a as the basic reference for this item of lighting equipment.

(p) It was proposed that all vehicles be equipped with a turn signal pilot indicator, and that those vehicles not equipped to tow trailers (i.e. vehicles with a fixed load flasher) be provided with a lamp failure indicator.

If visible to the rider, motorcycle front turn signal lamps can serve as the pilot indicator, as permitted in SAE Standard J588d, "Turn Signal Lamps".

Many comments objected to the proposal for a lamp failure indicator on vehicles 80 inches or more in overall width. Heavy-duty flashers used on these vehicles are not presently available with a failure indicator. However, this type flasher is considerably more durable than the fixed-load type, used on vehicles of lesser width, which in-

dicates a lamp failure, and the continued use of present heavy-duty flashers for wider vehicles is warranted. Also, vehicles of 80 inches or more overall width are generally used commercially, and many of them are subject to the regulations of the Bureau of Motor Carrier Safety of the Federal Highway Administration: such vehicles are more frequently inspected and failed lamps more promptly repaired. For the foregoing reasons, vehicles of 80 or more inches overall width are excluded from the requirement in the amended standard for a turn signal lamp failure indicator.

(q) As proposed, on vehicles less than 80 inches in overall width, license plate lamps and side marker lamps must be on when the headlamps are on, and the taillamps, license plate lamps, and side marker lamps when the parking lamps are on.

(r) No lamps that are normally steady-burning will be allowed to flash automatically for signaling purposes, except headlamps and side marker lamps.

Some commenters requested that additional lamps be permitted to flash, and some requested that flashing headlamps be prohibited.

With the exception of certain signals such as turn signals, hazard warning, and schoolbus warning signals, flashing lamps should be reserved for emergency and road-maintenance-type vehicles. Flashing lamps are otherwise prohibited in the Uniform Vehicle Code. Any lamp may be flashed by the vehicle driver by merely turning the standard lamp switch on and off, and this standard cannot prohibit such operation. However, the definition of "flash" adopted in the amendment makes clear that automatic flashers for use with steady burning lamps other than headlamps and side marker lamps are prohibited.

(s) SAE Standard J593c, "Backup Lamps", has replaced J592b as the basic reference for these lamps. The clarification is made that the center of the backup lamp lens is the optical center. However, because of the leadtime that will be required for manufacturers to alter their designs, good cause is considered shown for an effective date of January 1, 1973.

(t) Headlamp mountings will be required to meet SAE Recommended Practice J566, "Head-

lamp Mountings". Although some comments suggested that this was a redundant requirement, it has been determined that this set of requirements contains important safety elements such as requiring lateral adjustability of motorcycle headlamps, adjustability of all headlamps by one man with ordinary tools, and that the aim will not be disturbed under ordinary conditions of service, matters that are not dealt with elsewhere in Standard No. 108.

(u) Turn signal operating units must be capable of meeting a durability test of 100,000 cycles. Most of the comments stated that the 175,000-cycle durability test proposed for passenger cars would be difficult to meet and recommended that SAE Standard J589a be referenced instead of J589. Since J589a includes other changes that were not proposed (temperature test, durability test cycle rate, and ambient temperature), it is beyond the scope of this rule-making to incorporate it by reference in the amended standard. However, a 100,000-cycle durability test has been adopted, as specified in J589a.

(v) The mounting requirements for clearance lamps have been amended to indicate that delineating overall vehicle width, rather than vehicle height, is the primary purpose of these lamps, and a clarification has been added that clearance lamps on truck tractors may be mounted so as to indicate the width of the cab.

(w) Identification lamps must be mounted as high as practicable, and the maximum permissible spacing between the lamps has been reduced from 12 inches to 8 inches.

Objections to these requirements were received primarily because the reduced spacing would create mounting problems due to interference with functional hardware, such as air conditioners and door locking mechanisms. The 8-inch maximum spacing has been adopted, but spacing 6 to 12 inches apart is allowed when 8-inch maximum spacing is not practicable.

(x) License plate lamps must illuminate the plate from the top or sides only.

This is a standard practice with domestic vehicle manufacturers, but not with foreign ones. Foreign manufacturers objected because of inadequate leadtime, and the proposal has been

adopted with an effective date of January 1, 1973.

(y) A maximum mounting height of 72 inches is specified for turn signal lamps.

Objections were received from manufacturers of cab-over-engine trucks and of snow removal equipment who commented that such a requirement would restrict turn signal placement. However, since no exceptions are specified for headlamp mounting (24-54 inches), none are considered necessary for turn signal lamps (15-72 inches) for these vehicles.

Other comments suggested revisions to the standard that went beyond the scope of the proposal. Those that appear to have merit will be considered in future rulemaking actions.

In consideration of the foregoing, 49 CFR 571.21, Federal Motor Vehicle Safety Standard No. 108, Lamps, Reflective Devices, and Associated Equipment, is amended to read as set forth below.

Effective date: July 1, 1971, except as otherwise noted in the text of the rule.

Issued on October 22, 1970.

Douglas W. Toms,  
Director,  
National Highway Safety Bureau.

35 F.R. 16840  
October 31, 1970





## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

### Lamps, Reflective Devices, and Associated Equipment—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, Trailers and Motorcycles

(Docket No. 69-18)

Motor Vehicle Safety Standard No. 108, establishing requirements for lamps, reflective devices, and associated equipment on motor vehicles was amended on October 31, 1970 (35 F.R. 16840). Thereafter, pursuant to 49 CFR 553.35 (35 F.R. 5119) petitions for reconsideration of the amendment were filed by Freightliner Corp., Ford Motor Co., Japan Automobile Manufacturers Association, Inc., Wagner Electric Corp., General Motors Corp., Chrysler Corp., Rohm and Haas Co., Motor Coach Industries, International Harvester Co., and Motorcycle Industry Council, Inc. The petitions of Harley-Davidson Motor Co., Inc., Kawasaki Motors Corp., White Motor Corp., Hackney Bros. Body Co., and a supplement to the Japan AMA petition were not timely filed, and have been treated as petitions for rulemaking pursuant to 49 CFR 553.31. However, some of the issues raised in these petitions are similar to those contained in timely filed petitions.

In response to information contained in several of the petitions the standard is being amended. The Administrator has declined to grant requested relief from other requirements of the standard.

1. *Effective date.* General Motors, Ford, and Chrysler have petitioned for an extension of the effective date, stating that compliance is impracticable for 1971 models which, as of July 1, 1971, have only a short production life before the end of the model run. The Bureau has determined therefore that an effective date later than 1 year from issuance of the original amendment is in the public interest. The effective date of the standard is extended to January 1, 1972.

2. *Paragraph S4.1.1.7.* This paragraph is being amended to clarify that its stop lamp requirement does not apply to passenger cars manufactured before January 1, 1973, and to correctly cite SAE Standard J588d, "Turn Signal Lamps," June 1966, as the standard incorporated by reference.

3. *Paragraph S4.1.1.14.* The amendment inadvertently omitted installation requirements for backup lamps. This paragraph is hereby amended to correct the omission, and to insure that current installation requirements remain in effect until January 1, 1973.

4. *Paragraph S4.1.1.16.* Japan AMA and Motorcycle Industry Council objected to the portion of this paragraph that would require motorcycles, as of January 1, 1973, to be equipped with turn-signal units designed to complete a durability test of 100,000 cycles. In order to allow time for further industry study and comment on this aspect of performance, the requirement is withdrawn from the standard. It is anticipated, however, that an increased durability test cycle for motorcycle turn-signals will be proposed in a future rulemaking action.

5. *Paragraph S4.1.2.* Ford, Chrysler, and Rohm and Haas petitioned for reduction of the heat test cycle of the warpage test from 10 to 5 minutes or, in the alternative for an extension of the effective date of this requirement. The Traffic Safety Administration has determined that the 10-minute cycle is appropriate because of the frequency of usage of stop and backup lamps. The petitions for reduction of the test cycle are therefore denied. However, because of the leadtime for development and tooling of new

lamps which may be required, good cause is considered shown for postponement of the effective date for this requirement until January 1, 1973.

6. *Paragraph S4.3.1.8 and Table II.* General Motors, Motor Coach Industries, and International Harvester objected to the reduction in the maximum allowable spacing of identification lamps (from 6 to 12 inches, to 6 to 8 inches), alleging that there is no safety justification for the requirement, and that compliance by July 1, 1971, is impracticable. It is recognized that other approaches to wide-vehicle identification, such as minimum spacing between identification and clearance lamps, have merit. These approaches are being considered and, as deemed appropriate, will be incorporated into future rulemaking proposals. Accordingly, the petitions are granted; Table II is amended to reinstate the 6 to 12 inch spacing, and S4.3.1.8 is deleted.

7. *Paragraph S4.4.2 and Tables I and III.* Wagner Electric petitioned for reconsideration of the omission of sampling provisions from SAE Standard J590b, "Turn-Signal Units," October 1965, and SAE Standard J945, "Vehicular Hazard Warning Unit," February 1966. Letters have also been received inquiring as to the number of flashers constituting a sample for test and the number of failures allowable for compliance. Standard No. 108 was amended without notice to omit sampling provisions in order to bring the standard into conformity with the National Traffic and Motor Vehicle Safety Act of 1966, which requires that all items conform to applicable standards. Therefore the safety standards should not specify sampling provisions or failure rates. It is the manufacturer's responsibility to institute a test program that is sufficient to legally constitute due care, on a continuing basis, to insure that all products manufactured after the effective date of a standard meet the applicable requirements. However, in response to the procedural objection that the change is important enough to merit notice and opportunity for comment, Wagner's petition is granted and paragraph S4.4.2 and Tables I and III are being amended to strike the language precluding sampling provisions. At the same time, this agency is publishing today a notice (Docket No. 69-18; Notice 3, 36 F.R. 1913) pro-

posing omission of sampling provisions as of January 1, 1972, the date when this omission would otherwise have been effective.

8. *Paragraph S4.5.6.* International Harvester asked that the exemption for lamp outage indication be extended to vehicles equipped with auxiliary lamps or wiring, since these vehicles, like vehicles equipped to tow trailers, use variable load flashers. However, fixed load flashers providing lamp outage indication are available on the market for the increased load of an auxiliary lamp. The manufacturer can provide the appropriate flasher with foreknowledge of the intended end configuration of the vehicle, and International Harvester's petition is therefore denied.

9. *Tables II and IV.* Freightliner, International Harvester, and White Motor requested that the maximum mounting height allowable for turn-signal units, 72 inches, be reconsidered. This agency believes that most turn-signal lamps are presently mounted at or below the height of 72 inches, and that no detriment to motor vehicle safety would occur if the maximum mounting height were increased to 83 inches to allow higher mounting of turn-signals on cab-over-engine trucks, snow removal equipment, and other vehicles where a lower height may be impracticable. Tables II and IV are being revised accordingly. In Table IV the word "rear" was inadvertently omitted in that position of Column 2 establishing location requirements for side reflex reflectors, and has been reinserted.

10. *Table III.* Motorcycle Industry Council recommended that SAE Standard J584a, "Motorcycle and Motor Driven Cycle Headlamps," October 1969, be incorporated by reference rather than SAE Standard J584, April 1964. Such an amendment is beyond the scope of the original rulemaking proposal. Reference of the upgraded SAE Standard is being considered for a future rulemaking action. The petition is denied.

In addition, General Motors, Japan AMA, Motorcycle Industry Council, Harley-Davidson, and Kawasaki objected that the 300 candlepower limitation on motorcycle amber rear turn signals is unduly restrictive. Motorcycle Industry Council, Harley-Davidson, and Kawasaki objected to the spacing requirements for motorcycle

turn-signal lamps. Both of these matters are still under reconsideration and will be disposed of at a later date.

In consideration of the foregoing, S4.1.1.7, S4.1.1.14, S4.1.1.16, S4.1.2, S4.3.1.8, S4.4.2, Table I, Table II, Table III and Table IV of Motor Vehicle Safety Standard No. 108 in 49 CFR 571.21 are revised. . . .

Effective date: January 1, 1972, except as otherwise noted in the text of the rule.

Issued on January 28, 1971.

Charles H. Hartman,  
Acting Administrator, National High-  
way Traffic Safety Administration.

**36 F.R. 1896**  
**February 3, 1971**



## **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108**

### **Lamps, Reflective Devices, and Associated Equipment—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, Trailers and Motorcycles (Docket No. 69-18)**

This notice amends Motor Vehicle Safety Standard No. 108 to delete the 300-candlepower limitation on motorcycle amber rear turn signals, to adopt an interlamp spacing of 9 inches for motorcycle rear turn signal lamps, and to extend to January 1, 1973, the effective date by which passenger cars and vehicles less than 80 inches in overall width must be manufactured with self-canceling turn-signal units.

In response to petitions for reconsideration of Motor Vehicle Safety Standard No. 108 (35 F.R. 16840), certain amendments to the standard were published on February 3, 1971 (36 F.R. 1896). Action was deferred on other petitions pending further reconsideration. The National Highway Traffic Safety Administration has concluded its review of these petitions and is further amending Standard No. 108. General Motors, Japan Automobile Manufacturers Association, Inc., and Kawasaki Motors Corp. objected that the 300-candlepower limitation on motorcycle amber rear turn signals is unduly restrictive. Since the candlepower limitation would not have become effective until January 1, 1973, and since the Administration has not proposed similar restrictions on amber rear turn signals for other motor vehicles, these petitions are granted, and S4.1.1.11 is deleted. The NHTSA will address the overall problem of candlepower limitations, along with that of rear turn signal color, in a proposal currently under formulation.

Motorcycle Industry Council, Harley-Davidson, and Kawasaki objected to the spacing requirements for motorcycle turn signal lamps and requested that the spacing recommended by the SAE, 9 inches front and rear, be adopted instead. The Administration has decided to grant

the petitions insofar as they concern spacing of rear turn signals. Petitioners are concerned about the durability and injury potential of turn signal lamps spaced 12 inches apart at the rear of a motorcycle. While it appears true that wider spacing of turn signals at the rear create a greater likelihood of damage to the units should the motorcycle fall, this is not considered significant justification for spacing less than 12 inches. Rather, the crash injury problem appears of greater importance. While spacing of rear turn signal lamps at 12 inches does not appear to present a significant injury threat to pedestrians, it may present a hazard to operators and passengers when the vehicle is involved in a collision or falls over. This agency intends to evaluate motorcycle rear turn signal lamp spacing for injury potential in its motorcycle crash injury research program for the current fiscal year, and to reinstate the 12-inch requirement if such spacing does not appear to present a significant potential hazard. Table IV is hereby amended to specify 9 inches as the minimum horizontal separation distance for motorcycle turn signal lamps at the rear.

The motorcycle industry has also expressed its concern about the durability and injury potential of front turn signal lamps spaced 16 inches apart, as well as whether the spacing is justified by available data. Tests conducted by the Road Research Laboratory and SAE provide adequate support, not only for the 16-inch spacing at the front but also for the 12-inch spacing at the rear. Since front turn signal lamps are generally protected by handlebars and durability and injury potential do not appear to be significant, the Administration has decided to retain the 16-

inch spacing for motorcycle front turn signal lamps.

In addition, Citroen has brought to the attention of the Administration the fact that its vehicles exported to the United States are not equipped with, and are not currently designed to be equipped with, self-canceling turn signals. Because of the modifications required in the panel control, dashboard, and steering column, it avers that it cannot comply until January 1, 1973, and has petitioned that the effective date of S4.1.1.5 be extended. Since virtually all other motor vehicle manufacturers presently comply with this requirement, the granting of this petition would not cause a significant degradation of motor vehicle safety, and S4.1.1.5 is amended accordingly.

Finally, the word "red" inadvertently was included in the first sentence of S4.1.1.7 and is hereby deleted.

In consideration of the foregoing, § 571.21 is amended as follows:

1. S4.1.1.5 is amended to read:

S4.1.1.5 The turn signal operating unit on each passenger car, and multipurpose passenger

vehicle, truck, and bus less than 80 inches in overall width manufactured on or after January 1, 1973, shall be self-canceling by steering wheel rotation and capable of cancellation by a manually operated control.

2. In S4.1.1.7 the word "red" appearing between "Class A" and "turn signal lamps" is deleted.

3. S4.1.1.11 is deleted, in S4.1.1 the reference to "S4.1.1.16" is changed to "S4.1.1.15," and S4.1.1.12, S4.1.1.13, S4.1.1.14, S4.1.1.15, and S4.1.1.16 are renumbered S4.1.1.11, S4.1.1.12, S4.1.1.13, S4.1.1.14, and S4.1.1.15 respectively.

4. In Table IV, under Motorcycles Column 3 for turn signal lamps, the dimension "2 inches" for turn signals at or near the rear is changed to "9 inches."

Effective date: January 1, 1972.

Issued on May 13, 1971.

Douglas W. Toms,  
Acting Administrator.

36 F.R. 9069  
May 19, 1971

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment—Passenger Cars, Multipurpose****Passenger Vehicles, Trucks, Buses, Trailers and Motorcycles****(Docket No. 69-18)**

The purpose of this notice is to amend Motor Vehicle Safety Standard No. 108 to delete sampling and failure-rate provisions from the tests of turn signal and hazard warning signal flashers, and to modify performance requirements for these items of motor vehicle equipment.

The notice of proposed rulemaking upon which this amendment is based was published in the *Federal Register* on February 3, 1971 (36 F.R. 1913). Standard No. 108 incorporates by reference SAE Standard J590b, "Automotive Turn Signal Flasher," October 1965, and SAE Recommended Practice J945, "Vehicular Hazard Warning Signal Flasher," February 1966. Both standards specify a test sample size and a permissible failure rate for the items tested, viz., that 50 items shall be "submitted for test," that 20 items shall be chosen from the 50, and that "at least 17 out of 20 samples" shall meet the requirements. These are the provisions whose deletion was proposed.

Careful consideration has been given to the comments received in response to the notice. Many industry comments opposed the proposal, alleging that substantially total compliance would necessitate an increase in unit cost, and arguing that the cost increase is not justified by the safety benefits to be gained. Concern was also expressed as to possible penalties that might arise from the occasional failures that are claimed by the industry to be unavoidable in items of this type.

As stated in the February 3 notice of proposed rulemaking, the NHTSA considers permissible failure rates to be contrary to both the letter and the intent of the National Traffic and Motor Vehicle Safety Act. Manufacturers are required

to use due care to ensure that all their products meet the requirements of the standards. The assessment of penalties for test failures is not automatic, however, but is made after a review of all the facts, with a view to determining whether due care was used in accordance with sound engineering and manufacturing principles. The sampling and failure-rate provisions are accordingly hereby deleted from the requirements in Standard No. 108 for turn signal and hazard warning signal flashers.

The NHTSA has determined that the design and production problems associated with the manufacture of thermal flashers are such that total compliance with current performance and durability test requirements is not practicable. Therefore, modifications have been made in starting time, voltage drop, flash rate and percent current "on" time for performance tests, and in the duration and cycle of operation for durability tests. For example, the previously required performance range of 60 to 120 flashes per minute is broadened to 40 to 140 flashes per minute, and the percentage of time during a flash cycle that flasher contacts are required to be engaged, previously a range of 30 percent to 75 percent, is now 25 percent to 80 percent. The durability test for turn signal flashers will be continuous for 25 hours, rather than consisting of an on-off cycle for 200 hours. The durability test for hazard warning signal flashers is reduced to 12 hours from 36 hours. This agency has concluded that the net effect of these modifications is not a lessening of motor vehicle safety, since the minimum performance of flashers is substantially upgraded by requiring compliance of every flasher manufactured, rather than of only 17 of every 20 tested.

To implement the deletion of sampling and failure-rate provisions and the modification of the previous requirements, the NHTSA is amending Standard No. 108 to delete existing references to SAE Standard J590b and SAE Recommended Practice J945, and to adopt a new paragraph S4.6, *Turn signal flashers; hazard warning signal flashers*, that incorporates the new requirements.

In consideration of the foregoing, 49 CFR 571.21, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices and Associated Equipment*, is amended. . . .

*Effective date:* January 1, 1973. Manufacturers commented that the proposed effective date

of January 1, 1972, was impracticable in view of the necessity to evaluate and adopt new flasher and switch designs meeting the requirements. In light of the time needed for changes in design and preparation for production, the Administrator has found, for good cause shown, that an effective date later than one year from the date of issuance is in the public interest.

Issued on August 20, 1971.

Charles H. Hartman  
Acting Administrator

**36 F.R. 17343**  
**August 28, 1971**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices and Associated Equipment

(Docket No. 69-18; Notice 6)

Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, was amended on August 28, 1971 (36 F.R. 17343) to revise performance requirements for turn signal and hazard warning signal flashers. Thereafter petitions for reconsideration of the amendment were filed by Chrysler Corporation, Ideal Corporation, Signal-Stat Corporation, and Stewart-Warner Corporation. This notice responds to these petitions. This notice also amends Standard No. 108 to allow compliance with paragraph S4.6 of Standard No. 108a (§ 571.108a), at the option of the manufacturer, before January 1, 1973.

In its petition for reconsideration, Chrysler noted that "the amendment deletes the sampling provision and imposes new, presumably less stringent, but unique performance requirements" and commented that "while this change was announced in principle in prior rulemaking actions, the details of the new performance requirements were specified for the first time in this amendment." Claiming that its suppliers have not had time to evaluate their ability to comply with the new requirements, Chrysler petitioned that the amendment be withdrawn and reissued as a notice of proposed rulemaking. Sampling and failure-rate provisions were initially deleted in a rule published October 31, 1970 (35 F.R. 16840), which amended Standard No. 108 in various ways. Then, in response to objections that the action had not been previously the subject of a notice of proposed rulemaking, the action was revoked, a new notice of proposed rulemaking to that effect was issued on February 3, 1971 (36 F.R. 1913), and all interested persons were given full opportunity to comment. After careful consideration of the comments received, the agency again published a rule on August 28,

1971 (36 F.R. 17343), which deleted the sampling and failure-rate provisions. The rule also relaxed somewhat some of the quantitative levels of required performance. Thereafter, in accordance with the agency procedural rules, petitions for reconsideration of the rule were received and considered. The NHTSA considers that these actions have considerably exceeded the requirements of the Administrative Procedure Act, 5 U.S.C. 553, that notice and opportunity for comment be provided giving "either the terms or substance of the proposed rule or a description of the subjects and issues involved," and finds that no significant further benefit will be gained by reopening the matter for still another round of comments. Chrysler's petition is therefore denied.

Stewart-Warner submitted a general petition for reconsideration of the amendment, believing that "the amendment can allow unsafe conditions to come into existence." While it is true that the new performance requirements, on a strictly quantitative basis, may be viewed as less stringent than the old, the agency has concluded that the net effect of the amendment, considering the removal of the permissible failure rate, is not a lessening of the safety performance of these items.

Signal-Stat and Ideal petitioned that paragraph S4.1.1 be amended to require that all lighting equipment designed to conform to Standard No. 108 be "manufactured in accordance with sound engineering, manufacturing, and quality control principles." The basis for this request, in Signal-Stat's words, is that "while it is not possible to assure the durability of any single individual flasher, it is possible to reasonably produce requirements on a statistical basis in mass production," and that "the only

feasible and practical 'due care' and production means available, dictated by sound quality control principles, is to evaluate devices of volume on a statistical basis." The NHTSA has generally no objection to the above statements, although they are not necessary or appropriate for inclusion in the standard itself. The agency does not have any intent of outlawing designs such as thermal flashers, that have been previously used to satisfy the requirements in question. It also recognizes fully that with high-volume, low-cost items of equipment such as flashers, sample testing by the manufacturer may be the only practicable means of quality control. It can further be stated that in the case of such items, an occasional failure of NHTSA compliance tests, representing a very small percentage of production, will not necessarily result in a determination that there has been a violation of the Act. The question in each case is whether the manufacturer exercised due care; wherever a manufacturer can establish that he has exercised due care, he will not be in violation of the Act. The petitions of Ideal and Signal-Stat are therefore denied.

Ideal has also requested an interpretation that it be allowed to manufacture flashers before January 1, 1973, that conform to the revised requirements. To encourage manufacturers to conform at an early date, the NHTSA is amending Standard No. 108 to allow compliance with

paragraph S4.6 of Standard No. 108a (§ 571.108a), at the option of the manufacturer, between January 1, 1972, and January 1, 1973.

This notice also corrects a paragraph numbering error in both standards.

In consideration of the foregoing, 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, is amended. . . .

*Effective date:* January 1, 1972. Because the amendments create no additional burden or obligation, and permit an early implementation of revised performance requirements, the Administrator has found for good cause shown that an effective date earlier than one hundred eighty days after issuance of this notice is in the public interest.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administrator, 49 CFR 1.51.

Issued on December 22, 1971.

Douglas W. Toms  
Administrator

**36 F.R. 25013**  
**December 28, 1971**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 69-18; Notice 7)

The purpose of this notice is to specify a permissible method of certifying replacement lighting equipment for vehicles manufactured on or after January 1, 1972, to conform to Federal Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*.

Section 114 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1403) requires every manufacturer or distributor of motor vehicle equipment to "furnish to the distributor or dealer at the time of delivery of such . . . equipment by such manufacturer or distributor the certification that each such . . . item of motor vehicle equipment conforms to all applicable Federal motor vehicle safety standards . . . [S]uch certification may be in the form of a label or tag on such item or on the outside of a container in which such item is delivered." Thus, manufacturers of equipment to which a safety standard applies generally certify the equipment by labeling either the equipment or its container. In the case of Standard No. 109, *New Pneumatic Tires*, certification labeling on the items themselves is required by the standard.

Normally, the certification responsibility of a distributor is met by the distributor's delivery of the manufacturer's certification statement to the dealers to whom he sells. Although no separate statement is necessary, the delivery of the manufacturer's certification is considered a legal act by which the distributor makes the certification required by the statute.

With the extension of Standard No. 108 to items of replacement equipment, some difficulties in this scheme may arise where small items are not individually packaged. Automotive parts distributors commonly sell single items of equipment "over the counter" to local garagemen, who are dealers within the meaning of the Act. If these items are not separately packaged and not

marked with a certification, the distributor must, under the Act, certify the items to the dealer. Although there is a variety of ways in which the distributor can do this, it is probably unrealistic to expect a separate certification to be properly and consistently made at this level. Manufacturers of lighting equipment have recognized the problem, and have suggested that they be permitted to certify their equipment by affixing the symbol DOT to each item of equipment.

This request has been found to have merit, and S4.7 of Standard No. 108, 49 CFR 571.108, is hereby amended to permit manufacturers to certify lighting equipment items by placing the symbol "DOT" directly on the item, if they choose to do so.

In consideration of the foregoing, S4.7 of 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, is amended. . . .

*Effective date:* January 12, 1972. Because the amendment creates no additional burden or obligation and permits an optional method of compliance with an existing requirement, the Administrator has found for good cause shown that an immediate effective date is in the public interest.

This notice is issued under the authority of sections 103, 112, 114 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1401, 1407) and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administrator, 49 CFR 1.51.

Issued on January 6, 1972.

Douglas W. Toms  
Administrator

37 F.R. 445

January 12, 1972



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment****(Docket No. 69-18; Notice 8)**

This notice amends 49 CFR 571.108 and 571.108a, Motor Vehicle Safety Standard No. 108 and No. 108a, *Lamps, Reflective Devices, and Associated Equipment*, to permit off-center spacing of identification lamps on vehicles 80 inches or more in overall width.

Utility Trailer Manufacturing Co., has petitioned for the reinstatement of former requirements for the location of identification lamps. Before January 1, 1972, the three-lamp cluster was required to be mounted "as close as practicable to the vertical centerline." On vehicles manufactured on or after that date, the three identification lamps must be mounted "one on the vertical centerline, and one on each side of the vertical centerline." A type of trailer manufactured by Utility mounts a lock on the centerline of the trailer with the lock socket at the rear header. Typically the header is shallow and does not allow room to mount the gasket seal, the center lock socket, and an identification lamp all "on the vertical centerline." Extensive retooling is necessary for compliance, and apparently would cause hardship to Utility and other manufacturers of this type of trailer. The Administration believes that permitting the lamp cluster to be mounted slightly off center would not com-

promise motor vehicle safety, and accordingly is returning to the original mounting requirement for all vehicles required to have identification lamps.

In consideration of the foregoing, the specifications for "Identification Lamps" in Table II, Location of Required Equipment, 49 CFR § 571.108, and 49 CFR § 571.108a, are revised...

*Effective date:* January 25, 1972. Because the amendments create no additional burden or obligation, the Administrator finds for good cause shown that an immediate effective date is in the public interest.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administrator, 49 CFR 1.51.

Issued on January 19, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 1107**  
**January 25, 1972**



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

### Lamps, Reflective Devices, and Associated Equipment

(Docket No. 72-4; Notice 2)

This notice amends 49 CFR § 571.108 and § 571.108a, Motor Vehicle Safety Standard Nos. 108 and 108a, *Lamps, Reflective Devices, and Associated Equipment*, to revise the test method for reflex reflectors.

On April 8, 1972, the National Highway Traffic Safety Administration proposed (37 F.R. 7107) that the applicable SAE standard for reflex reflectors incorporated by reference in Table I and Table III of Standards No. 108 and 108a be SAE Standard J594e, "Reflex Reflectors," March 1970, to replace J594d, March 1967. All comments received were in favor of the proposal and the standards are being amended accordingly. The effect of the amendment is to permit photometric testing at a range around a test point if specular reflection is encountered at the test point itself. The amendment does not impose a new performance requirement but allows a more realistic method of testing than J594d, which prohibited testing at other than the specified test points, and which had the effect of causing a technical noncompliance if there were specular reflection at any test point.

Paragraph S4.3.1.2 has been incorporated into J594e and is being deleted from the text of Standard No. 108a. This paragraph specifies that, for purposes of photometric testing, the

axis of the side reflex reflectors shall be perpendicular to a vertical plane through the longitudinal axis of the vehicle.

In consideration of the foregoing, 49 CFR § 571.108 and § 571.108a, Motor Vehicle Safety Standards 108 and 108a, are revised . . . .

*Effective date:* Standard No. 108: Sep. 1, 1972; Standard No. 108a: January 1, 1973. Because the amendments create no additional burden and modify a test procedure currently in effect, it is found for good cause shown that an effective date earlier than one hundred eighty days after issuance is in the public interest.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administrator, 49 CFR 1.51.

Issued on July 28, 1972.

Douglas W. Toms  
Administrator

37 F.R. 15514  
August 3, 1972





# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 69-18; Notice 11)

This notice amends 49 CFR Part 571, by revoking Section 571.108a, Motor Vehicle Safety Standard No. 108a, *Lamps, Reflective Devices, and Associated Equipment* and deleting a conforming amendment to Standard No. 108, in accordance with a decision of the U.S. Court of Appeals.

Standard No. 108a was established on December 2, 1971 (36 F.R. 22909), to clarify requirements for turn signal and hazard warning signal flashers effective January 1, 1973. These requirements were established by an amendment published on August 28, 1971 (36 F.R. 13743). The amendment deleted sampling and failure rate provisions from the tests for these items of motor vehicle equipment, and modified the performance requirements.

Pursuant to section 105(a)(1), of the National Traffic and Motor Vehicle Safety Act of 1966 (15 USC 1394(a)(1)), Wagner Electric Corporation petitioned for review of the August 28, 1971 order in the United States Court of Appeals for the Third Circuit. On August 29, 1972, the court granted the petition, set aside the order and remanded the matter to the National Highway Safety Administration for new rulemaking proceedings consistent with the court's views.

(Wagner Electric Corporation v. Volpe, No. 71-1976 (3d Cir. 1972))

By this notice, the NHTSA deletes from the Code of Federal Regulations the amendment set aside by the Court's order. The deleted provision essentially constituted the version of the standard that was to become effective January 1, 1973, (Standard No. 108a) along with paragraph S4.1.1.16 of Standard No. 108, which allowed manufacturers to conform to the new requirements before that date.

In consideration of the foregoing, 49 CFR Part 571 is amended . . .

*Effective date:* This notice reflects the order of the U.S. Court of Appeals for the Third Circuit, whose mandate was issued September 19, 1972, and is effective as of that date.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority at 49 CFR 1.51.

Issued on September 28, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 20695**  
**October 3, 1972**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 71-21; Notice 3)

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to modify the method by which conformity of certain lamps to photometric requirements is determined. A notice of proposed rulemaking on this subject was published on November 30, 1971 (36 F.R. 22763).

Standard No. 108 requires that tail lamps, stop lamps, parking lamps, and turn signal lamps meet minimum photometric candlepower requirements at up to 27 individual test points. If a lamp fails to meet the minimum requirement at any test point, the lamp does not conform to Standard No. 108 even though it may exceed the specified minimum at all other test points.

As noted in the November 30, 1971 proposal, this requirement appeared unnecessarily severe, since deviances at individual test points are generally not great enough to be discernible to the human eye. The method proposed and adopted sets up seven groups of test points, as shown in Figure 1, each group containing from three to five test points. The groups include requirements for devices with one, two, or three separately lighted compartments, and multiple lamps used in an array to perform a function at a single design location. The minimum candlepower requirement for any single group is the sum of the minimum candlepower specified in the applicable SAE standards for individual test points within the group. Therefore, there will be no failure to conform to Standard No. 108 as long as the sum of the candlepower measured at all test points within a group equals or exceeds the required minimum figure for that group. The amendment will not have a significant effect on motor vehicle safety and is designed to set up a

more realistic and cost effective method of determining compliance with photometric requirements.

Two aspects of the proposal are not adopted in the amendment. The proposal would have set a floor of 60 per cent on the amount by which the measured candlepower at a single test point could fail to reach the required minimum for that test point. The same rationale governing the overall proposal dictated that the floor not be adopted: as long as the sum of the test points within a group meets the overall minimum for the group, the difference in illumination at any discrete test point is unlikely to be great enough to be discernible.

Secondly, the proposal would have required that clearance, side marker, identification, and parking lamps have minimum candlepower equivalent to tail lamps. This proposal has not been adopted. Comments indicated that the increase in candlepower would be so significantly greater as to cause a glare problem. The group test concept has been adopted for parking lamps, but not for clearance, side marker, identification lamps, which retain minimum candlepower for all test points.

In addition, a deferred effective date has been adopted for increased grouped candlepower requirements applicable to tail, stop and turn signal lamps with two or three lighted compartments, and to lamp arrangements where two or three lamps are used to perform a single function in a single design location. These requirements have been made effective September 1, 1974, in order to provide sufficient leadtime for redesign and retooling. In the interim, beginning January 1, 1973, such lamps or lamp arrangements may meet the grouped requirements applicable to single

compartment and single stop and turn signal lamps.

It was also proposed that minimum candlepower requirements be specified for tail lamps, stop lamps and turn signal lamps, measured at a 45-degree angle where any SAE Standard incorporated by reference required visibility of the lamps at a 45-degree angle. Objections were raised that the proposed values were too high and that there was no safety benefit in requiring them. The NHTSA, on the basis of its analysis of cost benefit factors, has not adopted the proposal.

The amendment does not adopt the proposal that both red and yellow rear turn signal lamps have the same maximum candlepower limitation. The subject of the color of rear turn signal lamps will be addressed in a forthcoming notice, in Docket No. 69-19.

The SAE standard applicable to parking lamps in Table III has been changed to SAE Standard J222, "Parking Lamps (Position Lamps)," December 1970. Paragraph S4.1.1.11, which specifies photometric values for parking lamps, is

deleted as these values are incorporated in the revised SAE standard.

In consideration of the foregoing, 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is revised . . . .

*Effective date:* January 1, 1973. Because the amendment creates no additional burden, it is found for good cause shown that an effective date earlier than one hundred eighty days after issuance is in the public interest.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392 and 1407) and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administrator, 49 CFR 1.51.

Issued on October 2, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 21328**  
**October 7, 1972**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment****(Docket No. 72-5; Notice 2)**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to specify stop and turn signal lens area requirements that are identical for all motor vehicles less than 80 inches in overall width.

As the NHTSA explained in its proposal published April 8, 1972 (37 F.R. 7107), Standard No. 108 requires (Table III) passenger cars, multipurpose passenger vehicles, trucks, and buses to be equipped with "Class A" turn signal lamps. Class A lamps prior to Standard No. 108 were generally found only on vehicles whose overall width is 80 inches or more. Class A lamps differ from Class B lamps in having a minimum effective projected illuminated area of 12 square inches rather than  $3\frac{1}{2}$  square inches. Paragraph S4.1.1.7 of Standard No. 108, however, permits passenger cars to meet Class A photometrics through an effective projected illuminated area not less than that of a Class B lamp ( $3\frac{1}{2}$  square inches). The NHTSA, in response to a petition from Jeep Corporation, proposed that this exception be provided for all vehicles less than 80 inches in overall width, instead of being limited to passenger cars, and that stop lamps be included as well.

The comments received supported the proposal. Recommendations were also made as to standardization of lens area and identification of lamps providing Class A photometric values. These will be treated as suggestions for future rulemaking since they were beyond the scope of the proposal.

In consideration of the foregoing, the first sentence of paragraph S4.1.1.7 of 49 CFR 571.108, Standard No. 108, is revised . . .

*Effective date:* January 1, 1973. Because the amendment relaxes a requirement and creates no additional burden, it is found for good cause shown that an effective date earlier than one hundred eighty days after issuance is in the public interest.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407), and the delegation of authority at 49 CFR 1.51.

Issued on: October 26, 1972.

Charles H. Hartman  
Acting Administrator

**37 F.R. 23272**  
**November 1, 1972**



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment****(Docket No. 71-21; Notice 4)**

This notice amends 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to specify minimum photometric-candlepower requirements for motorcycle turn signal lamps.

Standard No. 108 was amended on October 7, 1972 (37 F.R. 21328), effective January 1, 1973, to specify, in part, that turn signal lamps are not required to meet the minimum photometric values at each test point specified in Table 2 of SAE Standard J575d, "Tests for Motor Vehicle Lighting Devices and Components," if the sum of the candlepower measured at the test points within the groups listed in Figure 1 is not less than the sum of the candlepower values for such test points specified in J575d. Effective January 1, 1973, Class B turn signal lamps are required on motorcycles, and the minimum photometric candlepower values for such lamps are one-half those required for Class A turn signals. The amendment failed to make this distinction, and this notice corrects the omission.

In consideration of the foregoing, paragraph S4.1.1.12 of 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is amended . . .

*Effective date:* January 1, 1973. Because the amendment creates no additional burden, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority from the Secretary of Transportation to the National Highway Traffic Safety Administrator, 49 CFR 1.51.

Issued on November 21, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 25235**  
**November 29, 1972**





## **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108**

### **Lamps, Reflective Devices and Associated Equipment**

**(Docket No. 69-18; Notice 14)**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 8, to delete the requirements of the warpage tests for plastic lenses used on lamps.

The NHTSA proposed on July 7, 1972 (37 F.R. 13350), that the lens warpage test be deleted from the motor vehicle lighting standard. The test requirement itself, as contained in an SAE Standard incorporated by reference, lacked objectivity, in that it prohibited warpage that would "affect the proper functioning of the device" without further clarification. The lens warpage test did not appear to add significantly to motor vehicle safety.

Comments to the docket were divided, some confirming the NHTSA position on both issues. Others objected, suggesting that the agency seek to establish objective compliance criteria. On review of all data and arguments, the NHTSA finds that a safety problem that would justify the development of such a requirement has not been demonstrated.

In the future, if serious problems of lens warpage arise, they may be dealt with immediately

as safety-related defects under section 113 of the National Traffic and Motor Vehicle Safety Act, and steps can be taken to develop and promulgate an objective test.

In consideration of the foregoing, 49 CFR § 571.108 is amended . . . .

Effective date: Jan. 1, 1973. Because this amendment relieves a restriction and creates no additional burden, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

This notice is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority at 49 CFR 1.51.

Issued on December 29, 1972.

Jack L. Goldberg  
Acting Administrator

**38 F.R. 743**  
**January 4, 1973**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices and Associated Equipment

(Docket No. 71-21; Notice 6)

This notice denies petitions for reconsideration of an amendment to Federal Motor Vehicle Safety Standard No. 108 published on October 7, 1972, that modified the method by which conformity of certain lamps to photometric requirements is determined.

The National Highway Traffic Safety Administration amended 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, on October 7, 1972, (37 F.R. 21328) to allow photometric conformance of parking lamps, taillamps, stop lamps, and turn signal lamps to be based upon the sum of values derived from grouping individual test points rather than upon a requirement of conformance at each test point. Thereafter, pursuant to 49 CFR § 553.35, petitions for reconsideration of the amendment were filed by American Motors Corporation, Ford Motor Company, General Motors Corporation, SWF-Spezial fabrik fur Autozubehor Gustav Rau GmbH, and Volkswagen of America, Inc. Petitions raising the same issues but not timely filed were submitted by Automobiles Peugeot on behalf of the Association Peugeot-Renault and Westfälische Metall Industry KG. Chrysler Corporation submitted a request for an interpretation. The Administration has declined to grant requested relief.

1. *Inclusion of SAE Recommended Practice J256.* All petitioners except General Motors asked for adoption in its entirety of SAE Recommended Practice J256, "Service Performance Requirements for Motor Vehicle Lighting Devices," July 1971. Petitioners complain that the NHTSA adopted the grouping concept and photometric values of Table I and Table 3 of the Practice without including a correction adjustment factor or a tolerance for maximum

photometric values. SAE J256 permits an adjustment in lamp orientation from design position not to exceed 3 degrees in determining compliance with photometric requirements. SAE J256 also permits a tolerance of 10 per cent in determining whether group photometric requirements are met. It further provides that the candlepower of parking lamps, taillamps, stop lamps, and turn lamps shall not exceed 120 per cent of the maximum values specified in appropriate SAE Standards. In support of their request petitioners argue that a readjustment factor is necessitated by the difficulties that test laboratories experience in insuring that lamps of complex and varied shapes are mounted with accuracy in the design position. Tolerances in candlepower output are requested because of variations in test lamp bulbs, and in manufacture and assembly of the lamps themselves.

When Standard No. 108 required compliance at every test point, the SAE Standards incorporated by reference did not permit the tolerances that petitioners request. Compliance by meeting minimum group totals rather than compliance at each test point is intended to insert a factor to compensate for those variations in test methods and manufacture that apparently concern industry. The tolerances in the SAE Recommended Practice represent a further lowering of the quantitative performance requirements. The NHTSA has determined that no sufficient reasons have been given to lower these requirements further, and that it is not in the interest of motor vehicle safety to do so. The petitions are denied.

2. *Excluded lamps.* General Motors requests the inclusion in the group testing concept of clearance lamps, side marker lamps, and identification lamps, as originally proposed by NHTSA.

GM's petition is denied. Under the proposal, photometric requirements for clearance, side marker, and identification lamps would have been increased, and identical to those for parking lamps and taillamps. But the proposed values were not adopted, and these lamps were not included in the group concept. The NHTSA believes that the group concept is inappropriate for lamps of low candlepower, and that requirements should be met at each test point. The photometric requirements for clearance, side marker, and identification lamps, are minimal in nature and identical at all test points.

3. *Interpretations.* Chrysler Corporation has asked whether "the maximum values provided in Figure 1 may be used in place of the maximum photometric values set out in paragraph S5.2," which states in pertinent part that "the maximum photometric candlepower values for one-compartment and two-compartment stop lamps shall be 309 candlepower." The answer is yes, and paragraph S5.2 is being deleted.

Chrysler has also asked whether "subscripts (f) and (g) of Table 2 of . . . SAE Standard J575d applies to the measurement of the maximum values in . . . Figure 1 . . .". There is no footnote (g) in J575d, and footnote (f) does apply.

Clarification has also been requested as to whether the maximum tail lamp values in Figure 1 are intended to apply at test points below the horizontal. The answer is no; the limitation, as was true before the amendment, is restricted to the horizontal and above.

In consideration of the foregoing, section S5 of 49 CFR § 571.108, Motor Vehicle Standard No. 108 is amended by removing the designation "S5.1" and deleting paragraph S5.2.

Effective date: February 5, 1973. Because the amendment clarifies an ambiguity and creates no additional burden, good cause has been shown that an effective date earlier than 180 days after issuance is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on January 30, 1973.

Douglas W. Toms  
Administrator

**38 F.R. 3331**  
**February 5, 1973**

## **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108**

### **Lamps, Reflective Devices and Associated Equipment**

**(Docket No. 71-21; Notice 7)**

This notice corrects the amendment to 49 CFR § 571.108 published on February 5, 1973 (38 F.R. 3331) that removed the designation "S5.1" and deleted paragraph S5.2 from Motor Vehicle Safety Standard No. 108.

The amendment inadvertently overlooked the fact that a new paragraph S5.3, concerning lens warpage, had been added to Standard No. 108 on January 4, 1973 (38 F.R. 743). The notice published on February 5, 1973 should have retained the designation of S5.1, deleted S5.2 and renumbered S5.3.

In consideration of the foregoing, section S5 of 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, is amended by adding the designation "S5.1" to the first paragraph, and

changing the designation of paragraph S5.3 to read "S5.2".

Effective date: February 28, 1973. Because the amendment corrects an error and creates no additional burden good cause has been shown that an effective date earlier than 180 days after issuance is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51).

Issued on February 21, 1973.

Douglas W. Toms  
Administrator

**38 F.R. 5338**  
**February 28, 1973**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 71-21; Notice 6)

This notice amends the test procedures relating to bulbs in Motor Vehicle Safety Standard No. 108, effective January 1, 1974.

The National Highway Traffic Safety Administration proposed on December 1, 1972 (37 F.R. 25535) to amend two test procedures relating to bulbs. As the NHTSA explained:

"At the present time, test bulbs must be operated at their rated mean spherical candlepower unless otherwise specified." Not all bulbs have been assigned a mean spherical candlepower rating. The proposal specifies that when no rating has been assigned by the bulb manufacturer or the SAE or, if the lamp is sealed and the bulb cannot be replaced, the bulb shall be operated at design voltage. Secondly, instances have arisen where noncompliance of lamps could not be proven in marginal cases because of the tolerances permitted in test bulbs. The notice seeks to render test results more reproducible by proposing that the filaments of test bulbs (other than sealed-in bulbs) be positioned within  $\pm .010$  inch of the nominal design position specified in SAE Standard J573d, "Lamp Bulbs and Sealed Units," or by the bulb manufacturer. Other requirements of SAE Standard J575d, incorporated by reference into Standard No. 108, remain applicable."

Comments generally supported the notice, and the standard is being amended as proposed. The chief objection voiced was that it is difficult to obtain test bulbs at the proposed filament location tolerances. The NHTSA finds, however, that these difficulties are outweighed by the need for objective and repeatable tests. Moreover, while the NHTSA intends to use a bulb with the filament positioned within  $\pm .010$  inch of the de-

sign position for its compliance tests, a manufacturer is not required to do so. If the manufacturer has test data to show a correlation between a Standard No. 108 test bulb and one used by him outside the  $\pm .010$ -inch tolerances, his certification could be based on the test data and the correlation factor, assuming that that factor indicated compliance. Similarly if it can be demonstrated that the lamp complied using test bulbs having filament locations on both the plus and minus sides of the design position, outside the  $\pm .010$  tolerance but within the other tolerances of J573, compliance could be certified.

The NHTSA would also like to make clear that only the filament in the test bulb for the function tested need meet the  $\pm .010$ -inch tolerance. For example, if a combination tail lamp/stop lamp is being tested for the tail lamp function, the stop lamp filament need not be within the tolerance, and a bulb with a correctly positioned filament may subsequently be substituted for the stop lamp test.

In consideration of the foregoing, 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is revised by adopting new paragraphs S4.1.1.19 and S4.1.1.20. . . .

Effective date: January 1, 1974.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 38 F.R. 12147)

Issued on June 15, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

38 F.R. 16230  
June 21, 1973





# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 69-19; Notice 6)

This notice amends the requirements of Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices and Associated Equipment* applicable to trailers that are either less than 6 feet in overall length or 30 inches in overall width.

On October 25, 1972 the National Highway Safety Administration proposed (Docket No. 69-19; Notice 3, 37 F.R. 22801) as part of a comprehensive rule making action that small trailers need not be equipped with the complement of lighting devices required of larger trailers. The agency proposed that a trailer less than 30 inches wide may be equipped with only one of each of the following devices located at or near its vertical centerline: tail lamp, stop lamp, and rear reflex reflector. The NHTSA also proposed that a trailer that is less than 6 feet in overall length, including the trailer tongue, need not be equipped with front side marker lamps and front side reflex reflectors. In the opinion of the NHTSA this equipment is sufficient to meet the needs of motor vehicle safety. Commenters generally agreed, and Standard No. 108 is being amended as proposed. Two suggested that two rear reflectors be required. The amendment, which is phrased as an option, does not preclude a two-reflector configuration if the manufacturer wishes. In accordance with several comments, the amendments, which relieve a restriction, are being made effective 30 days after publication of this notice in the *Federal Register*.

Several amendments of Standard 108 are also being made by this notice to reflect the expiration of the stated period for certain compliance options. Paragraphs S4.1.1.13, S4.1.1.14, and S4.1.1.15 of Standard 108 deferred compliance with amended backup lamp and license plate lamp requirements, and with turn signal require-

ments for motorcycles, until January 1, 1973, at the manufacturer's option. Since these options are no longer permissible, the paragraphs are being deleted. Rather than redesignating the succeeding subparagraphs of S4.1.1 as has been the practice in the past, the NHTSA, in order to eliminate confusion, intends to maintain the current order and adopt new numbers in successive order for new requirements. A similar policy has been adopted with respect to footnotes in the Tables. Thus, the trailer lighting amendments adopted by this notice are designated S4.1.1.17 and S4.1.1.18. S4.1.1.16 is amended to delete the expired option allowing use of Class B turn signals on vehicles less than 80 inches wide designed to complete a durability test of 100,000 cycles. Appropriate amendments reflecting these deletions are made to the footnotes and references in Tables I, III, and IV of the standard.

In consideration of the foregoing, 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, is amended. . . .

Effective date: July 23, 1973. Because the amendment in part relieves a restriction and creates no additional burden, and in part is administrative in nature, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Section 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 USC 1392, 1407; delegation of authority at 38 F.R. 12147.)

Issued on June 15, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

38 F.R. 16875  
June 27, 1973



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 69-19; Notice 7)

This notice amends 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to specify requirements for rectangular headlamps that may be used as an option in a four-headlamp system until September 1, 1976. The notice also sets forth NHTSA policy concerning rectangular headlamps after such time.

Interested persons have been afforded an opportunity to participate in the making of the amendment by a notice of proposed rulemaking (Docket No. 69-19; Notice 5) published on June 8, 1973 (38 F.R. 15082), and due consideration has been given to all comments received in response to the notice, insofar as they relate to matters within its scope.

The prior notice responded to a petition by General Motors. Under it, a rectangular headlamp approximately 6¾ in. by 4¼ in. would be permissible in five headlamp types (Types 1A through 5A) proposed for the two four-lamp front lighting Systems B and C proposed in Notice 3 to Docket No. 69-19 (37 F.R. 22801). Photometric values based upon Notice 3 were also proposed. As Notice 5 was technically an amendment of Notice 3, other headlighting requirements of the earlier proposal, such as those affecting mounting and aiming, were incorporated by reference.

Based upon comments to the docket and consideration of the issues involved, this amendment allowing an optional rectangular headlamp system differs from the proposal in several respects. The most important of these is its incorporation into Standard No. 108 as it is currently in effect, rather than into the amendment proposed by Notice 3. Thus, only two of the five proposed rectangular headlamp types

have been adopted, and the photometric, mounting, and other requirements are with slight exceptions those that are presently required for a four-headlamp system. Dimensions are slightly different from those proposed, at the request of General Motors which has modified its original experimental design.

The comments received expressed a variety of opinions on the rectangular headlamp proposal. The most common point of agreement was that there is no clear safety benefit or detriment in the use of rectangular headlamps. The NHTSA expressed concern in the notice "that there should not be such a proliferation of headlamp shapes and sizes that the motorist who has an immediate need to replace a headlamp has difficulty in finding one," and this concern was shared by several commenters. The points were also made that rectangular headlamps may be more expensive than conventional ones, and that they cannot be mechanically aimed with equipment currently in use. Finally, the question was raised whether rectangular headlamps might encounter more service performance difficulties than round ones.

Commenters generally supported the relief of a design restriction imposed by Standard No. 108, and this has been a prime determinant in the NHTSA's decision to permit certain rectangular headlamps. The NHTSA has determined that, by reducing the proposed number of types of rectangular headlamps from five to two, there will not be an undue proliferation of headlamps on the replacement market. Since these headlamps are optional and not mandatory, their cost is not a major relevant factor to be considered in determining whether they should be permitted. Rectangular headlamps can be optically

aimed, the method in predominant use in State motor vehicle inspections, and thus the NHTSA did not find the difficulty of mechanical aiming a persuasive argument. In addition, mechanical aimers capable of aiming rectangular headlamps are under development and should shortly be commercially available. The NHTSA is, of course, concerned as to whether the rectangular headlamps will encounter more service difficulties than conventional ones, but does not believe that the issue can be proven until such units are mass-produced and actually in service.

These amendments to Standard No. 108 represent an interim rather than a final decision on the issues of rectangular headlamps and appropriate dimensions. During 1974 and 1975 NHTSA expects the world motor vehicle industry, through international standards organizations and regular trade and professional associations, to arrive, if possible, at a consensus for one set of requirements, including dimensions for rectangular headlamps. Late in 1975, the NHTSA intends to announce its final decision on the matter: whether to remain with the requirements and dimensions adopted in this notice, to propose and adopt others, or to revoke the option. The agency at this point is not committing itself either to adopt any consensus dimensions or to perpetuate the ones desired by General Motors, though the field experience with such lamps over the next two years may be expected to have some influence in the final decision. Adoption of these optional dimensions by

a manufacturer during this interim period is at his own risk, and the cost of changing over from interim to permanent dimensions, if different, in 1977 model year tooling will not be considered a material factor in the decision on permanent dimensions. It is planned that the interim amendment will be in effect through August 31, 1976, and that no petitions will be entertained for variant headlamp dimensions or system configurations before the end of that period, to avoid multiplying stock items and disrupting supply channels.

In consideration of the foregoing, 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, is amended by adding a new paragraph S4.1.1.21. . . .

*Effective date:* January 1, 1974. Because the amendment creates an optional system without imposing new mandatory requirements on any person it is found for good cause shown that an effective date earlier than 180 days after the issuance of the amendment is in the public interest.

(Secs. 103, 119 Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on November 23, 1973.

James B. Gregory  
Administrator

**38 F.R. 33084**  
**November 30, 1973**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 72-22; Notice 2)

This notice amends Federal Motor Vehicle Safety Standard No. 108 to modify requirements for lighting equipment on mobile structure trailers.

The National Highway Traffic Safety Administration proposed on September 30, 1972 (37 F.R. 20573) that mobile structure trailers (commonly known as mobile homes) need be equipped only with tail lamps, stop lamps, and turn signal lamps if the manufacturer so chooses. As the agency observed in support of its proposal:

"Since January 1, 1968, mobile homes towed on their own wheels have been categorized as 'trailers' by the Federal motor vehicle safety standards, and required to conform to applicable Federal motor vehicle lighting specifications. Pursuant thereto, mobile homes in transit have been equipped with the full complement of trailer lighting equipment required by Standard No. 108: Tail lamps, stop lamps, license plate lamps, reflex reflectors, side marker lamps and reflectors, identification lamps, clearance lamps, and turn signal lamps.

"Because of the limited time a mobile home is on the public ways, manufacturers have been advised that compliance may be achieved by use of a lighting harness removable upon completion of transit. The Trailer Coach Association alleges that installation and removal expense of the wiring harness adds needless cost to 'the only low cost housing available to the majority of people today.' It has petitioned for an amendment of the lighting requirements such that reflex reflectors, license plate lamps, identification lamps, clearance lamps, and side marker lamps would not be required on mobile structure trailers 'when moved under the authority of State issued

permits whose regulations specifically prohibit movement during hours of darkness.' . . .

"Available information indicates that a mobile structure trailer, defined in 49 CFR 571.3 as 'a trailer that has a roof and walls, is at least 10 feet wide, and can be used off road for dwelling or commercial purposes,' cannot move over the public roads of any State without a permit containing the condition that the trailer shall not be moved during hours of darkness. In many jurisdictions, movement is also prohibited during inclement weather or under other conditions of reduced visibility. The safety benefit of requiring the full complement of trailer lighting equipment appears negligible under these circumstances, and unnecessary for the safety of the motoring public."

The proposal was supported by numerous mobile home manufacturers and manufacturers associations, and opposed by a number of manufacturers and suppliers of lighting equipment, by a consumer group, one State, and other interested persons. Those who opposed the proposal argued that the presence of large mobile homes on the public highway is a traffic hazard *per se*, and that a full complement of lights should be required regardless of restrictions on movement. Comments were made that the existence of State laws did not necessarily preclude movement of mobile homes either at night or during periods of inclement weather. Most States, however, require special warning to motorists when mobile structure trailers exceeding a specified width and length are being transported. This warning may be in the form of flagmen, escort vehicles, flags on the towing vehicle, and "wide load" signs.

The NHTSA has concluded that motor vehicle safety does not require a full complement of

lighting devices on mobile structure trailers, whose use of the roads, as a class, is infrequent, and confined to daylight hours, when identification lamps, clearance lamps, and side marker lamps are not normally in use. Accordingly, the standard is being amended to specify that the only required lighting equipment for these vehicles is stop lamps, turn signal lamps, tail lamps, and rear reflex reflectors. The NHTSA has decided to include rear reflex reflectors as required equipment to provide some measure of protection when a mobile structure trailer is parked on the road shoulder at night or during periods of reduced visibility. Mobile structure trailers in interstate transit, however, must continue to meet the requirements of the Bureau of Motor Carrier Safety (49 CFR 393.17, 393.25).

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In consideration of the foregoing, 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is revised by adding a new section S4.1.1.25. . . .

*Effective Date:* May 29, 1974. Because the amendment relieves a restriction, and creates no additional burden, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on April 24, 1974.

James B. Gregory  
Administrator

**39 F.R. 14946**  
**April 29, 1974**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 73-25; Notice 2)

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, to: (1) update the incorporated SAE standard on clearance lamps, (2) group test points for determining photometric conformance of backup lamps, (3) identify load requirements for testing variable load turn signal flashers, and (4) increase the allowable voltage drop in testing turn signal and hazard warning signal flashers.

These amendments are responsive to petitions by Truck Safety Equipment Institute, Signal Stat Corporation, Sylvania GTE and Hope-Tronics, Ltd., as discussed in the notice proposing the amendments, published on November 2, 1973 (38 F.R. 30280). The comments received in response to the notice were unanimous in supporting the change from SAE J592c to J592e as the referenced standard for clearance lamps, and in adopting the grouping of test points to determine compliance of backup lamps with photometric requirements. Comments also unanimously supported the identification of load requirements for testing variable load turn signal flashers, with one commenter suggesting that this might better be accomplished by referencing SAE J590e. The suggestion was not adopted, as J590e incorporates matter not proposed in Notice 1. The proposal that the maximum voltage drop across flashers be increased from 0.45 volt to 0.8 volt was supported by four vehicle

manufacturers with a fifth suggesting an increase to 0.6 volt. It was objected to by six commenters, all of them flasher manufacturers, on the grounds that it would result in a lessening of light output. The NHTSA recognized this possibility in Notice 1, but noted that the diminution would be so slight as to be undetectable by the human eye, while the public would be afforded the choice of a flasher with greater life expectancy. The amendment increasing the minimum voltage drop is adopted as proposed.

In consideration of the foregoing, 49 CFR 571.108 Motor Vehicle Safety Standard No. 108 is amended. . . .

*Effective date:* May 29, 1974. Because these amendments either relax a requirement or reflect existing widespread industry practice, and create no additional burden, it is found for good cause shown that an effective date earlier than one hundred eighty days after issuance is in the public interest.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on April 24, 1974.

James B. Gregory  
Administrator

**39 F.R. 15130**

**May 1, 1974**





**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment****(Docket No. 73-33; Notice 2)**

This notice amends 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to allow variable-load turn signal flashers on trucks that are capable of accommodating slide-in campers.

The proposal on which the amendment is based was published on January 3, 1974 (39 F.R. 822), pursuant to a petition by Ford Motor Company. Standard No. 108 presently requires turn signal failure indication in accordance with SAE Standard J588d, except on vehicles whose overall width is 80 inches or more, and on vehicles equipped to tow trailers. This has the effect of mandating use of fixed-load flashers, since special circuitry would be necessary to sense and indicate a failure in a variable-load system.

The NHTSA proposed to include trucks capable of accommodating slide-in campers in the group of vehicles not required to have a failure indicator (and hence allowed to have variable-load flashers). The problem presented by Ford may be summarized as follows: when camper turn signal lamps are added to the turn signal circuit of the vehicle carrying the camper, the flash rate will increase, to a level generally exceeding the maximum specified by Standard No. 108. Allowing a variable-load flasher will insure a uniform flash rate when the camper is installed.

In response to the opportunity afforded for comments, seven submittals were received. Six supported the proposal. The seventh commenter,

a foreign equipment manufacturer, opposed the proposal on the grounds that suitable flashers for similar applications are available in Europe.

The NHTSA has determined that the availability of variable-load flashers ensuring flash rate control within the limits of the standard is desirable, and should be permitted on trucks capable of accommodating slide-in campers, despite the lack of lamp failure indication. In order to make clear the intent of the regulation, language is being added to specify that the exception applies only to vehicles with variable-load flashers.

In consideration of the foregoing, paragraph S4.5.6 of 49 CFR 571.108, Motor Vehicle Safety Standard No. 108 is revised. . . .

*Effective date:* June 6, 1974. Because the amendment allows an additional option and creates no additional burden, it is found for good cause shown that an immediate effective date is in the public interest.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on May 31, 1974.

James B. Gregory  
Administrator

**39 F.R. 20063**  
**June 6, 1974**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

(Docket No. 74-16; Notice 2)

This notice amends 49 CFR 571.108, 571.122, and 571.123, Motor Vehicle Safety Standards Nos. 108, 122, and 123, to modify current requirements that apply to motor-driven cycles.

Interested persons have been afforded an opportunity to participate in the making of the amendment by a notice of proposed rulemaking published on April 12, 1974 (39 F.R. 13287) and due consideration has been given to all comments received in response to the notice, insofar as they relate to matters within its scope.

The prior notice responded to petitions by Cycles Peugeot, Ateliers de la Motobecane, and S.I.N.F.A.C., manufacturers, and Bermuda Bikes, Inc., and Robert F. Smith, retail dealers. The notice proposed that a motor-driven cycle whose speed attainable in 1 mile is 30 mph or less need not be equipped with turn signal lamps, and may be equipped with a stop lamp with one-half the photometric output otherwise required. Braking fade and recovery requirements also would not apply to these low-speed vehicles. Maximum stopping distance values for the various tests would be added for test speeds of 25, 20, and 15 mph. Finally, a braking control on the left handlebar would be a permissible alternative to the required right foot braking control.

The comments received addressed both areas of performance covered in the proposal, and areas where no standards currently exist, such as motors, transmissions, pedals, and a request for exemption from Standard No. 119, *Tires for Vehicles Other Than Passenger Cars*. As these latter comments cover matters beyond the scope of the proposal, this notice does not discuss them. The agency, however, has been formally petitioned for rulemaking covering transmissions and Standard No. 119, and will respond to the petitioners in the near future.

The decision by NHTSA not to establish a separate category of vehicle was objected to by

some commenters. In support of their request, they argued that the majority of motor-driven cycles have engines producing only 1.5 to 2 horsepower, and consequent low maximum speeds, reducing the need for forward lighting that is currently required of these vehicles. Petitioners submitted no data justifying their request. The NHTSA, however, intends to study the matter of forward lighting for low-powered two-wheeled vehicles through a research contract with the University of Michigan. When the contract is completed the agency will then decide whether further rulemaking is warranted.

The proposal distinguished motor-driven cycles on the basis of maximum speed attainable in 1 mile, rather than on horsepower, and the value selected, 30 mph, fell within the maximum (40 mph) and minimum (20 mph) suggested by commenters. The NHTSA has concluded therefore that the distinction should be adopted as proposed.

Some manufacturers requested restrictive controls on power plant output, apparently in fear that the engine of a vehicle with a top speed of 30 mph or less could be modified to exceed that speed, and therefore cause the vehicle to no longer comply with the Federal standards. This agency has not found that course of action to be practicable. The various ways to modify a vehicle after purchase cannot be anticipated or prevented at the manufacturer level. On the other hand, the great majority of consumers use their vehicles in the form in which they were purchased. The motor-driven cycle category itself contains a limitation of 5 horsepower, which will be applicable to the special lighting modifications. In the NHTSA's judgment, modifications by consumers and the consequent equipment requirements should continue to be regulated at the State level.

The fact that the agency took no action to propose a reduction in existing headlamp requirements for motor-driven cycles was criticized by several manufacturers as unduly restrictive because of the low speed and power output of their vehicles. No justification has been shown for such a change. Motor driven cycles therefore must have sufficient generating and/or battery capacity to meet the headlamp requirements.

There was no substantive objection to the actual proposals for omission of turn signals, reduced stop lamp photometrics, relief from brake fade requirements, inclusion of maximum allowable stopping distances for low speeds, and rear brake control placement. Accordingly, the standards are being amended in the manner proposed.

Standard No. 122 is also being amended to delete the final effectiveness test (S5.5) for those motor-driven cycles excused from the fade and recovery requirements. The purpose of the final effectiveness test is to check the stopping ability of the vehicle after the fade and recovery tests. Since this requirement has been eliminated for motor-driven cycles of low top-speed, the final effectiveness test is redundant, and an unneces-

sary duplication of the second effectiveness test. No safety purpose is served by its retention. Language is also added to the fade and recovery and final effectiveness test procedures (S7.6, S7.7, and S7.8), making it clear that they do not apply to motor-driven cycles whose speed attainable in 1 mile is 30 mph or less.

In consideration of the foregoing, 49 CFR Part 571 is amended . . . .

Effective date: October 14, 1974. As the amendments allow new options for compliance, relieve restrictions, and impose no additional burdens on regulated persons, it is found for good cause shown that an effective date earlier than 180 days after issuance of the amendments is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51.)

Issued on September 6, 1974.

James B. Gregory  
Administrator

**39 F.R. 32914**  
**September 12, 1974**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****(Docket No. 69-19; Notice 9)**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to waive the requirement that there be a 4-inch minimum spacing between a front turn signal and a low-beam headlamp whenever the turn signal lamp's photometric output is at least two and one-half times the minimum required. The amendment is effective October 17, 1974.

Interested persons have been afforded an opportunity to participate in the making of the amendment by a notice of proposed rulemaking (Docket No. 69-19, Notice 3) published on October 25, 1972 (37 F.R. 22801), and due consideration has been given to the comments received in response to the notice.

In order to enhance detectability of front lamp function by oncoming drivers at a distance, Standard No. 108 through its incorporation of SAE Standard J588d, "Turn Signal Lamps," requires at least 4 inches of spacing between a front turn signal lamp and a low beam headlamp. However, as part of Notice 3, the NHTSA proposed in paragraph S8.12 that turn signal lamps and low beam headlamps could be closer if the candlepower output of the turn signal lamp is at least two and one-half times that specified for yellow turn signal lamps in the SAE standard. Mercedes-Benz of North Amer-

ica has asked the NHTSA to make an early decision on the proposal to facilitate its product development plans.

Comments in general supported the proposal. Some requested removal of the 4-inch limitation regardless of turn signal photometric output. Others felt that the photometric values of all front turn signal lamps should be two and one-half times the present minimum. The NHTSA has decided to amend the standard primarily as proposed, but with reference to the grouped test points of Figure 1 of the standard rather than to the individual test points of J588.

In consideration of the foregoing, 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is amended by adding new paragraph S4.3.1.7 . . . .

*Effective date:* October 17, 1974. Because the amendment relieves a restriction without imposing new requirements on any person, it is found for good cause shown that an effective date earlier than 180 days after the issuance of the amendment is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on September 12, 1974.

James B. Gregory  
Administrator



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108**  
**Lamps, Reflective Devices and Associated Equipment**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, to resolve an unintended ambiguity between paragraphs S4.1.1.11 and S4.1.1.12, and paragraph S4.3.1.1.

Paragraphs S4.1.1.11, S4.1.1.12 and S4.1.1.22 allow photometric conformance of parking lamps, stop lamps, taillamps, turn signal lamps, and backup lamps to be determined by measurement of sums of values within specified groups of test points. Paragraph S4.3.1.1 prohibits vehicle equipment obscuring the photometric output "at any test point" specified in SAE materials unless auxiliary lighting equipment is provided that meets all photometric requirements. Standard No. 108 can thus be interpreted as requiring the addition of auxiliary lighting equipment if, for example, a single test point of a taillamp is obscured by part of the vehicle, even though the taillamp might meet the group requirements of Figure 1. NHTSA is therefore amending paragraph S4.3.1.1 to remove the ambiguity.

In consideration of the foregoing the second sentence of paragraph S4.3.1.1 of 49 CFR 571.108 Motor Vehicle Safety Standard No. 108 is revised.

*Effective date:* April 21, 1975. Because the amendment clarifies an ambiguity and creates no additional burden on any person, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on April 15, 1975.

James B. Gregory  
Administrator  
**40 F.R. 17574**  
**April 21, 1975**





## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 74-34; Notice 2)

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to define in objective terms an acceptable level of surface gloss and/or haze for plastic materials used for lamp lenses following an outdoor exposure test. The amendment is effective upon publication in the *Federal Register*. It is based upon a notice of proposed rulemaking published on September 30, 1974 (39 F.R. 35179).

Paragraph S4.1.2 of Standard No. 108 incorporates by reference SAE Recommended Practice J576b, *Plastic materials for use in optical parts, such as lenses and reflectors, of motor vehicle lighting devices*. This practice requires in pertinent part (Paragraph 4.2.2) that, following an outdoor exposure test of 2 years' duration, exposed samples, when compared with unexposed control samples, shall not show haze or loss of surface luster. This requirement has been interpreted as forbidding any haze or loss of surface luster, and has prohibited the use of plastics of uncoated polycarbonate resin, as these plastics show a surface change after outdoor weathering. General Electric Company petitioned for rulemaking to amend Standard No. 108 to define in objective terms an acceptable level of surface gloss, so that uncoated polycarbonate plastic may be used for exterior automotive applications. Although a protective coating is available for the plastic, GE stated that vehicle manufacturers are reluctant to use it because of the cost involved, "from 3-40 cents per lens depending upon the size."

In support of its petition GE submitted a large body of technical information showing the effect of surface gloss reduction on the photometric performance and signaling effectiveness of various types of lighting devices used on

motor vehicles. These tests showed that at the end of a 3-year period the photometric output through uncoated polycarbonate lenses decreases, on the average, less than 10 percent. In GE's view, deglossing to haze levels of 50 percent does not appear significantly to affect the overall photometric performance and signaling effectiveness of a lamp. The effect of haze is to scatter light from the point of maximum intensity to the wider angle test points, resulting in a diminution of light output at the former, and an increase at the latter. In accordance with GE's test data and suggestion, however, the National Highway Traffic Safety Administration (NHTSA) proposed that haze level should not exceed 30 percent. NHTSA tentatively found that the proposed amendments would enhance traffic safety. Polycarbonate lenses appear to offer some benefits lacking in conventional plastics in terms of heat resistance and higher impact strength.

It was also proposed to update the referenced SAE Recommended Practice J576b, to J576c, effective January 1, 1976. This substitution had been previously proposed (Docket No. 69-19; Notice 3, 37 F.R. 22806) and favorably commented upon. The only difference is that J576c requires a 3-year exposure test while J576b requires only a 2-year one.

Comments submitted in response to the notice generally indicated support by vehicle manufacturers, and opposition by manufacturers of lamps and plastic materials. It was argued that the data in the petition did not support a relaxation, and that further data and study were necessary before a decision could be made. These arguments do not appear to have merit. On the basis of the comments, however, the amendment excludes reflex reflectors. The current higher

performance level is justified for reflector materials, which do not have a light source shining through them. In addition, the amendment specifies that the tests are performed on lens materials rather than finished lenses.

The economic effect of the amendment is that by allowing use of uncoated polycarbonate materials, a lens possessing superior heat resistance and impact durability will be made available at a lesser cost.

In consideration of the foregoing, 49 CFR 571.108 is amended. . . .

*Effective date:* June 18, 1975. Since the amendment does not require compliance before

January 1, 1976 and allows optional compliance until then, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on June 12, 1975.

James B. Gregory  
Administrator

**40 F.R. 25677**  
**June 18, 1975**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 75-8; Notice 2)

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to remove the restriction that would disallow manufacture of vehicles with four-lamp rectangular headlamp systems on and after September 1, 1976.

The NHTSA proposed on April 30, 1975 (40 FR 18795) the termination of the amendment to Standard No. 108 adopted November 30, 1973 (38 FR 33084), that disallowed use of rectangular headlamp systems on motor vehicles manufactured on or after September 1, 1976. In allowing probationary use of the new headlamp system, this agency had concluded that the interests of safety required a period in which the systems could be evaluated as to on-road performance and availability of replacements. A final decision was scheduled for late in 1975 on whether to allow continued use of such systems, and if so, whether to retain the current dimensions or to propose modifications.

The NHTSA has decided to remove the termination date of September 1, 1976, thus allowing indefinite use of four-lamp rectangular headlamp systems, and to retain the current dimensions. In the period that rectangular systems have been in use no service or supply problems have come to this agency's attention. The lamps have been tested and approved by the American Association of Motor Vehicle Administrators. No comments to the notice of April 30, 1975, objected to the removal of the termination date, and all those who commented on the

issue supported it. The dimensions specified in Standard No. 108 have been adopted by the Society of Automotive Engineers in SAE Standard J579c, "Sealed Beam Headlamp Units for Motor Vehicles," December 1975, and are now accepted by the motor vehicle and lighting industries. There has been occasional criticism that these systems increase vehicle weight and cost without a corresponding benefit in safety. Any weight increases are very minor, however. The purpose of the amendment was to remove a design restriction and to allow manufacturers and consumers the freedom to choose an alternative but equivalent headlighting system. The cost increase is not, therefore, mandated by the standard.

The Administrator also requested comments in the April 30, 1975, notice as to the advisability of proposing an amendment to Standard No. 108 that would allow a single two-lamp rectangular system. Commenters generally supported the concept of a two-lamp system, advising dimensions based upon SAE recommendations. The subject is now under consideration by the agency.

In consideration of the foregoing, paragraph S4.1.1.21 of 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is amended by deleting the phrase "manufactured between January 1, 1974 and September 1, 1976" and substituting the phrase "manufactured on or after January 1, 1974".

*Effective date:* November 24, 1975. Because the amendment relieves a restriction and creates no additional burden on any person it is found

for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51)

Issued on November 17, 1975.

James B. Greory  
Administrator

**40 F.R. 54426**  
**November 24, 1975**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment****(Docket No. 75-15; Notice 2)**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices and Associated Equipment*, to modify requirements for clearance lamps on vehicles of special configuration.

Notice of the amendment was published on June 5, 1975 (40 FR 24204), and an opportunity afforded for comment. The NHTSA proposed that the inboard visibility angle of 45 degrees for clearance lamps need not be met on a vehicle where it is necessary to mount the lamps on surfaces other than the extreme front or rear to indicate the overall width or for protection from damage during normal operation of the vehicle. Restricted inboard visibility angles of clearance lamps are encountered on many types of vehicles other than boat trailers and horse trailers. Examples are (1) front clearance lamps that are mounted on a truck body behind the cab and below the top of the cab, and (2) front and rear clearance lamps mounted on the fenders of trucks and trailers such as liquid and bulk commodity vehicles and cement mixer carriers.

Eleven comments were submitted by manufacturers, trade associations, and the California Highway Patrol. Ten of these supported the

amendment. The sole dissenter felt that there might be traffic situations where visibility at some inboard positions would be important. Trailmobile and Recreational Vehicle Industry Association requested modifications to Standard No. 108 that were beyond the scope of the proposal and thus were not considered.

In consideration of the foregoing, 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is amended. . . .

*Effective date:* November 24, 1975. Because the amendment relieves a restriction and creates no additional burden upon any person, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51)

Issued on November 17, 1975.

James B. Gregory  
Administrator

**40 F.R. 54427**  
**November 24, 1975**



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment****(Docket No. 69-19; Notice 10)**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to clarify the electrical terminal specifications for Type 1A rectangular headlamps.

Standard No. 108 was amended on November 30, 1973, (38 FR 33084) to specify requirements for rectangular headlamps that may be used as an option in a four-headlamp system. Figure 2 of the amended standard specifies certain interchangeability features of Type 1A and 2A rectangular headlamps, including location and arrangement of the electrical terminals. The three terminals shown in Figure 2 are designed as "ground," "lower beam," and "Type 2A upper beam." The terminal designated as "lower beam" is used as the terminal for the upper beam on Type 1A headlamps. This is implied by the notation, "no connection or terminal for Type 1A headlamp," under the phrase "Type 2A upper beam," since the ground is not a connection, but the figure may not be sufficiently clear on that point. In order to make it clear, this notice amends Figure 2 so that the "lower beam" terminal is redesignated as the "Type 2A lower beam or Type 1A upper beam" terminal.

It has also come to the attention of this agency that certain dimensional tolerances of Figure 2 are unnecessarily restrictive and that other methods of dimensioning are more applicable in certain cases. In addition, an optional terminal

configuration permitted for other headlamps is not currently included for the Type 1A and 2A headlamps.

Accordingly, Figure 2 is being revised to provide a tolerance change to the overall lamp width (6.58 inches) and height (4.20 inches). The lamp corner radius of 0.56 inch is changed to 0.54 inch, a terminal spacing of 0.333 inch is changed to 0.335 inch, and an optional terminal configuration is specified. A dimension is included for the seating lugs, and a different method of dimensioning the locating lug is specified.

These changes do not affect interchangeability or performance of the lamps and are specified only to relieve unnecessary restrictions.

*Effective date:* December 23, 1975. Because the amendment creates no additional burden upon any person it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 103, 119, Pub L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 49 CFR 1.51)

Issued on December 3, 1975.

James B. Gregory  
Administrator

**40 F.R. 59349  
December 23, 1975**





# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 69-19; Notice 11)

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, primarily to modify requirements applicable to turn signal lamps. The amendments are effective January 5, 1976.

Triangle Home Products has petitioned for immediate adoption of SAE Standard J588e, *Turn Signal Lamps*, September 1970, as the referenced standard for that item of lighting equipment. This change was originally proposed by NHTSA in Notice 3, Docket No. 69-19, (37 F.R. 22801). SAE J588e differs from J588d in several respects, the principal one being that the minimum effective projected luminous area of all turn signal lamps is 8 square inches. SAE J588d had divided turn signal lamps into two classes, A and B, but this no longer occurs in J588e. Class A turn signal lamps were those with a lens area not less than 12 square inches, while Class B were those whose minimum lens area was not less than 3.5 square inches. The amendment means that the minimum required luminous area of turn signals on passenger cars, and on other vehicles (except motorcycles) less than 80 inches in overall width, is increased to 8 square inches from 3.5 square inches, while that of larger vehicles is reduced to 8 from 12 square inches. The agency expects there to be no effect upon safety from this reduction as the photometric requirements are unchanged.

This proposal was not uniformly supported, several manufacturers objecting that the increase in minimum area from 3.5 square inches to 8 square inches was unnecessary, and suggesting 5 square inches instead. The NHTSA notes, however, that the SAE adopted J588e after many tests that demonstrated that the increase to 8

square inches, by providing more signal area, resulted in better estimation of the position of the signaling vehicle as seen by drivers of oncoming and following vehicles. Because of the increased photometrics for turn signal lamps that became effective January 1, 1970, it is difficult to manufacture lamps smaller than 8 square inches and produce the required light output. Finally, an area smaller than 8 square inches would increase the unit area intensity to a level that is likely to be distressing to many drivers. It is likely, however, in spite of the objections to the proposal that the industry conforms at present. The NHTSA surveyed the turn signal lens of 18 contemporary domestic and foreign passenger cars, finding no lens area less than 8 square inches, with the average at 14. However, the amendments permit continued compliance with J588d, on an optional basis, until September 1, 1978.

Notice 3 also proposed the adoption of updated SAE Standards, J585d and J586c, for tail lamps and stop lamps respectively. There were no objections to these proposals. The principal difference in the updated standards is the inclusion of definitions of and photometering instructions for multiple compartment lamps and multiple lamp arrangements. SAE J586c also establishes a minimum of 8 square inches for the effective projected luminous lens area of stop lamps, and, in a combination stop lamp-turn signal lamp, prohibits operation of the stop lamp while the turn signal is flashing. SAE J585d, in a change from J585c, requires measurement of photometrics not less than 10 feet from the photometer screen, the previous distance being a minimum of 4 feet. Because of these changes, the NHTSA is permitting continued compliance with J585c and J586b until September 1, 1978.

Accordingly, Standard No. 108 is being amended to incorporate the three new SAE Standards. Editorial amendments are also made to S4.1.1.6, S4.1.1.7, S4.1.1.12, S4.5.5 and S5.1 to conform them to the new requirements.

In consideration of the foregoing, 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is amended. . . .

*Effective date:* January 5, 1976. Because the effect of the amendments is to allow compliance with either the new or the existing requirements until September 1, 1978, an immediate effective

date imposes no additional burden on any person and is found for good cause shown to be in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407; delegation of authority at 19 CFR 1.50)

Issued on December 23, 1975.

James B. Gregory  
Administrator

**41 F.R. 765**  
**January 5, 1976**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment****(Docket No. 69-19; Notice 12)**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, to allow conformance with SAE Standard J579c, "Sealed Beam Headlamp Units for Motor Vehicles", December 1974 as an option to compliance with the presently referenced SAE Standard J579a.

On October 25, 1972, the National Highway Traffic Safety Administration proposed (37 FR 22801) as part of a comprehensive rulemaking action that SAE Standard J579a, as currently referenced in Standard No. 108, be replaced by SAE Standard J579b. Except for the increased maximum candlepower (75,000 candlepower) specified in SAE Standard J579b, the commenters generally supported this proposal. SAE Standard J579c has added a definition of H-V axis and a description of rectangular sealed beam headlighting systems; otherwise it is identical to J579b.

SAE Standard J579c provides compatibility between headlight beam positions regardless of whether the headlamp is aimed by mechanical, optical, or visual methods, unlike SAE Standard J579a, which results in different beam positions if the lamp is aimed by mechanical methods instead of optical or visual methods. Since the headlamp beam position provided by the optical and visual aim methods is higher and results in greater seeing distance for the driver, the same improvement should be afforded by mechanical aim methods.

SAE Standard J579c contains minor changes in photometrics at certain test points which also provide improved lighting, but are of such a minor technical nature that allowance of these values would be a relief of a restriction. However, this amendment of Standard No. 108 restricts the maximum candlepower output, for the present time, to 37,500. The question of allowing the SAE maximum of 75,000 candlepower was raised in the notice of October 25, 1972, and will be considered in future rulemaking actions.

In consideration of the foregoing, amendments are made to 49 CFR § 571.108, Motor Vehicle Safety Standard No. 108. . . .

*Effective date:* January 8, 1976. Because the amendment allows an option, relieves restrictions, and creates no additional burden on any person, it is found for good cause shown that an immediate effective date is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50)

Issued on January 5, 1976.

James B. Gregory  
Administrator

**41 F.R. 1483**  
**January 8, 1976**



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment****(Docket No. 69-19; Notice 14)**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to provide identical wattage tolerances for headlamps with rectangular and circular lenses.

Standard No. 108 was amended on January 8, 1976 (41 FR 1483), to add S4.1.1.33 which provided, in subparagraph (c), an allowable tolerance of plus 7.5 percent for the maximum design wattage of headlamps with circular lenses that conform to SAE Standard J579e, *Sealed Beam Headlamp Units for Motor Vehicles*, December 1974. The question has been raised by Stanley Electric Co., Ltd., of Tokyo, Japan, and General Motors Corp. of Warren, Michigan, whether the same tolerance applies for the maximum design wattage of headlamps with rectangular lenses.

The answer is yes, and S4.1.1.21(b) is amended by this notice to provide an allowable tolerance of plus 7.5 percent for Type 1A and Type 2A headlamps. The 7.5 percent tolerance is the average actual maximum wattage (as opposed to design wattage) rating of headlamps listed in

Table 2 of SAE Standard J573d, *Lamp Bulbs and Sealed Units*, December 1968, as determined by multiplication of the maximum amperage times the design volts, and applies to all Type 1, Type 1A, Type 2 and Type 2A headlamps.

In consideration of the foregoing, subparagraph (b) of S4.1.1.21 is deleted and a new subparagraph (b) is added. . . .

*Effective date:* June 21, 1976. Because this amendment clarifies an existing requirement and creates no additional burden upon any person, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on June 14, 1976.

James B. Gregory  
Administrator

**41 F.R. 24886**  
**June 21, 1976**



# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108**

## **Lamps, Reflective Devices, and Associated Equipment**

**(Docket No. 75-8; Notice 5)**

This notice amends 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to allow use of a two-lamp rectangular headlamp system on motor vehicles manufactured on or after November 1, 1976.

On April 15, 1976, the agency proposed (41 FR 15870) that a system of two headlamps conforming to SAE Recommended Practice J1132—"142mm  $\times$  200mm Sealed Beam Headlamp Unit," January 1976, be used as an option in a two-headlamp system, and that applicable referenced and subreferenced SAE Standards and Recommended Practices not specifically included in SAE J1132 be those published in the 1976 SAE Handbook. A corrective notice was published on May 6, 1976 (41 FR 18687) clarifying that the headlamps would be "designed to conform" with J1132, consistent with other requirements for compliance of lighting equipment. The comments have received full consideration in adoption of this amendment.

The proposal was generally supported by vehicle and lighting manufacturers. Commenters indicated approval of the relief of a design restriction and the allowance of a greater choice of headlamps. Those who opposed the proposal commented that it might be difficult to obtain a replacement headlamp and that the 2-lamp rectangular system would complicate the supply-distribution network. Others commented that new mechanical aimers would be required for the two-lamp system.

In response to these comments, a study of the introductory period of the 4-lamp rectangular system demonstrated that replacement lamps were generally available, the supply-distribution network functioned as well as with older conventional headlamps, and that rectangular lamps

could be inspected and properly aimed as well as, if not better, than those with circular lenses. Although the 4-lamp system required development of a new mechanical aimer, the 2-lamp system will require only a simple adapter for the aimer.

Lamp manufacturers commented that the rectangular lamps may have more service performance difficulties than the circular types. However, unlike the 4-lamp system, the 2-lamp Type 2B system provides improved aim, about 15 percent higher photometries in low beam performance, and up to 100 percent improvement in high beam performance.

In accordance with recently enunciated Department of Transportation policy encouraging adequate analysis of the consequences of regulatory action (41 FR 16200) the agency has evaluated the economic and other consequences of this action on the public and private sector, including possible loss of safety benefits. Since the system itself is an optional one, in one sense there is neither an adverse or positive economic impact. A Type 2B headlamp is expected to cost 150 percent of a conventional Type 2 headlamp but because of the improved photometries of the lamp, the amendment should result in an overall benefit to safety.

The National Motor Vehicle Safety Advisory Council has not taken a position on the amendment.

In consideration of the foregoing a new paragraph S4.1.1.34 is added to 49 CFR 571.108, Motor Vehicle Safety Standard No. 108. . . .

*Effective date:* November 1, 1976. Because the amendment relieves a restriction and allows an optional means of compliance, it creates no additional burden upon any person. Accordingly, it

**Effective: November 1, 1976**

is found for good cause shown that an effective date earlier than 180 days after publication in the *Federal Register* is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on October 13, 1976.

John W. Snow  
Administrator

**41 F.R. 46437**  
**October 21, 1976**



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Lamps, Reflective Devices, and Associated Equipment**

(Docket No. 69-19; Notice 16)

This notice amends 49 CFR 571.108 Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, in minor respects.

This agency recently reviewed Motor Vehicle Safety Standard No. 108 and discovered five minor errors which this notice corrects. The first is an amendment of S4.1.1.4 to substitute SAE Standard J594e, "Reflex Reflectors," March 1970 as the referenced SAE Standard, a change inadvertently omitted when Table I and Table III were amended to incorporate J594e (37 FR 15514, August 3, 1972). The second corrects typographical errors in S4.1.1.7 that occurred in the republication of the standard on August 23, 1976 (41 FR 35522). The third is a correction of S4.3.1 which currently excludes "S4.3.1.8" from its applicability. There is no S4.3.1.8. The fourth amendment corrects a typographical error in S4.3.1.1.1 that also occurred in the republication of the standard. The final amendment substitutes "J593c, February 1968" in Table III as the referenced standard for backup lamps, in

place of "J593e, July 1972". This error initially occurred in "Volume 49 CFR Parts 200 to 999 revised as of October 1, 1975."

In consideration of the foregoing 49 CFR 571.108, Motor Vehicle Safety Standard No. 108 is amended as follows.

*Effective date:* November 1, 1976. Since the amendments are corrective in nature and impose no additional burden upon any person, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on November 12, 1976.

John W. Snow  
Administrator

**41 F.R. 50826**  
**November 18, 1976**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices, and Associated Equipment

(Docket No. 71-19; Notice 06)

(Docket No. 75-32; Notice 02)

This notice responds to petitions for reconsideration of the newly established Standard No. 120, *Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars*, by amendments to the standard in the areas of tire and rim selection, rim marking, and tire label information. A minor amendment of Part 567, "Certification," is also made. In addition, the decision that the agency no longer regulates mobile structure trailers (mobile homes) is also set forth, along with appropriate conforming amendments of Standard No. 120, Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, and § 51.3, *Definitions*, of Part 571.

Standard No. 120 (49 CFR 571.120) establishes that multipurpose passenger vehicles (MPV's), trucks, buses, motorcycles, and trailers shall be equipped with tires and rims that are adequate to support the fully-loaded vehicle under contemplated operating conditions. The legislative history of the National Traffic and Motor Vehicle Safety Act (the Act) (15 U.S.C. 1381, *et seq.*) and § 202 of that Act establish Congress' concern that motor vehicles could be equipped with inadequate tires and that regulation would be necessary to protect against this problem:

Sec. 202. In standards established under title I of this Act the Secretary shall require that each motor vehicle be equipped by the manufacturer or by the purchaser thereof at the time of the first purchase thereof in good faith for purposes other than resale with tires which meet the maximum permissible load standards when such vehicle is fully loaded with the maximum number of passengers it is designed to carry and a reasonable amount of luggage.

Standard No. 120 was promulgated January 19, 1976 (41 FR 3478, January 26, 1976), and 17 petitions for reconsideration of particular provisions were filed by vehicle, tire, and rim manufacturers, and by trade associations representing these manufacturers. In view of the length of time that has been taken to respond to these petitions for reconsideration, the effective dates for implementation of several of the standard's provisions were delayed (41 FR 18659, May 6, 1976) (41 FR 36657, August 31, 1976). The standard's basic provision for tire and rim selection (S5.1) was not delayed and became effective September 1, 1976.

*Tire and rim selection.* The primary effect of Standard No. 120 is fulfillment of § 202 of the Act by specification of the minimum load-carrying characteristics of tires on motor vehicles not already subject to the passenger car tire and rim selection requirements of Standard No. 110, *Tire Selection and Rims*, of Part 571. The rim selection requirements of the standard are limited (use of a rim designated as suitable by the tire manufacturer for use with its product; use of "DOT" labeled rims on and after September 1, 1979) in anticipation of more comprehensive regulation of rims as part of an upcoming wheel standard.

Tire selection consist of two elements: With one exception, each vehicle must be equipped with tires that comply with Standard No. 119, *New Pneumatic Tires for Vehicles Other than Passenger Cars* (or Standard No. 109, *New Pneumatic Tires*), and the load rating of the tires on each axle of the vehicle must together at least equal the gross axle weight rating (GAWR) for that axle. The term GAWR is defined in § 571.3 of Part 571 as "... the value specified

by the vehicle manufacturer as the load-carrying capacity of single axle system, as measured at the tire-ground interfaces." The GAWR concept formalizes the decision each manufacturer makes about the load-bearing ability of the tires, rims, axle, brakes, and suspension components (at a minimum) chosen to support and control the loaded vehicle.

The Truck Equipment Body Distributors Association (TEBDA) questioned the requirement that, with one exception, each vehicle subject to Standard No. 120 be equipped with tires that conform to Standard No. 119 (or Standard No. 109). TEBDA's March 17, 1976, letter concerned certification of trucks equipped for agricultural service with Goodyear "Terra-Tires." The "Terra-Tire" is one example of tires that are placed on specialized motor vehicles which operate both on and off the highway. The tires are specially designed and are unable to be certified to either of the tire performance standards.

Section S5.1.1 specifies that "each vehicle equipped with pneumatic tires for highway service shall be equipped with tires that meet the requirement of [the tire] standard[s] . . . ." This language is intended to exclude from the requirement for Standard 119 (or 109) tires those vehicles which the manufacturer (or person later in the chain of distribution) decides to equip with tires other than "tires for highway service." The decision is left with the manufacturer at this time in view of the absence of data that demonstrates problems in the use of these tires that would justify their elimination. Any pattern of accident occurrence that points to unsafe utilization of non-highway service tires would presumably constitute a safety-related defect and could lead to revision of Standard No. 120 to regulate them. At this time, the answer to TEBDA is that the tire selection requirements of S5.1.1, and S5.1.2 as a logical extension of S5.1.1) would not apply to a vehicle equipped with non-highway service tires. It is emphasized that this exclusion from Standard No. 120 bears no direct relationship to the determination of whether a particular vehicle qualifies as a "motor vehicle" as that term is defined in §102(3) of the Act.

The second requirement for tire selection (S5.1.2) is that "[t]he sum of the maximum load ratings of the tires fitted to an axle shall be not less than the gross axle weight rating (GAWR) of the axle system. . . ." Comparable further specification exists when multiple ratings appear on the certification label, or the tires used on the vehicle are not listed on the certification label.

Because no petition directly raised objections to the requirements of S5.1.2, the agency first addresses issues raised in a separate and outstanding NHTSA proposal dealing with tire choice and its relationship to GAWR. The action (Definition of "Gross Axle Weight Rating," 40 FR 58152, December 15, 1975) proposed that the GAWR determination be based on, among other things, the vehicle's maximum attainable speed or the maximum load rating of the tire established by the tire manufacturer at 60 mph, whichever is lower. The proposed modification was intended to reflect the industry practice of assigning (in most cases) and labeling (in accordance with Standards 119 and 109) a tire's basic load-carrying capabilities in recognition of the unrestricted highway speeds to which it is normally exposed. This formalization of GAWR determination was intended to prevent manufacturers from assigning higher capabilities to tires than their 60-mph ratings, based on arbitrarily low speeds.

Most comments supported the GAWR proposal, although several truck manufacturers asked that the term "maximum attainable speed" be specifically defined as it is elsewhere in NHTSA regulations. Ford Motor Company opposed the proposed change in the definition of GAWR as an arbitrary selection of only one of the many criteria that enter into the determination of GAWR. The company suggested that other means exist to prevent assignment of arbitrary GAWR's based on tire ratings other than those established at 60 mph and so labeled on the tire sidewall.

The NHTSA agrees with Ford and notes that the "other means" to regulate this practice exist in the tire selection requirements of S5.1.2 of Standard No. 120. At the time of the GAWR proposal, Standard 120 had not been made final. Since its implementation on September 1, 1976,

a manufacturer is free to determine GAWR as in the past, but the maximum load ratings (marked on the tire sidewall) of tires on the vehicle must at least equal the GAWR listed. For this reason, the NHTSA's proposal for amendment of the GAWR definition is considered unnecessary and is therefore withdrawn. Further notice and opportunity for comment will precede any further action on the proposal set forth in that notice.

Several issues were raised in regard to the GAWR proposal that should be addressed for purposes of clarification. The Heavy & Specialized Carriers Conference of the American Trucking Associations (HSCC) cautioned the NHTSA against requiring an "unrestricted speed GAWR" on the Part 567 certification label in view of two State laws (or regulations) that no vehicle can operate on the state highways at gross vehicle weights greater than those listed on the vehicle in accordance with Federal regulations. It is common practice to load some "heavy hauler" vehicles to a gross vehicle weight that exceeds the unrestricted speed ratings of the vehicle tires, because the vehicle's tires are capable of carrying greater weight at reduced speeds.

As issued, Standard No. 120 required that the maximum load ratings of the tires at least equal the GAWR. This effectively limits the GVWR to the sum of these GAWR's (except in the case of semi-trailers). In the agency's view, however, the problem cited by HSCC can be avoided by listing additional GAWR's (calculated for reduced speed operation) at the end of the certification plate following the required data on the label. This practice has been followed by members of the Truck Trailer Manufacturers Association (TTMA) and was confirmed as permissible by the NHTSA in a March 5, 1975, letter to the TTMA. In order to aid resolution of issues that may arise between States that wish to refer to the certification label and operators that wish to continue the additional rating system, the agency hereby makes an interpretive amendment to Part 567 to specify where additional ratings may appear.

Based on this understanding of the relationship between choice of tires under S5.1.2 of

Standard No. 120 and the determination of GAWR under § 567.4 of Part 567, a modification of the requirements of Standard No. 120 is justified. In the case of a vehicle that is incapable of the 60-mph speed used by tire manufacturers to establish the maximum load rating that is stamped on the tire sidewall (typically a powered vehicle and not a trailer), it would not be reasonable to require the GAWR's to be strictly limited to the sum of the maximum load ratings of the tires on the vehicle. This is because the vehicle will never achieve the speeds for which maximum load ratings were established. In many cases, provision is made to rate tires for a greater load at the lower (but maximum) speed of which a vehicle is capable. In recognition of this extremely limited specialized situation, the agency amends S5.1.2 to permit installation of tires with reduced speed capabilities in the case of vehicles whose maximum attainable speed is not greater than 50 mph. This amendment is considered to be a technical adjustment of language to fully implement the intent of the final rule as that was established. A separate amendment of § 571.3 is made to establish the basis for determination of a vehicle's maximum attainable speeds.

Volkswagen raised a separate issue concerning the requirement that the sum of maximum load ratings at least equal the GAWR of the axle system. This provision, in the case of an MPV, truck, bus, or trailer that is equipped with passenger car tires, requires that the maximum load ratings on the tires be reduced by approximately 10 percent before calculating the sum. The purpose of this 10-percent reduction in tire rating is to account for the generally harsher treatment (impulse and surge loading in the case of MPV's off-road) to which the tires of a vehicle other than a passenger car are exposed that is not accounted for in passenger car tire ratings. Volkswagen requested data showing that MPV's actually experience more abusive treatment in use.

The MPV category is based in part on the existence of characteristics that make these vehicles less amenable to passenger car standards. If Volkswagen has data indicating that the two categories actually experience identical usage, the

NHTSA would prefer to adjust the definition to ensure that these vehicles are subject to all passenger car standards. Until that time, the existing rationale for excusing these vehicles from some passenger car standards dictates the use of higher strength tires.

As earlier noted, the rim selection requirements of Standard No. 120 are not substantial, consisting of a requirement that the rims be listed by the tire manufacturer as suitable for use with its tires, and a requirement that, on and after September 1, 1979, the rims used on a vehicle be labeled as specified in S5.2 of the standard. The September 1, 1979, date for use of labeled rims replaced a March 1, 1977, date that proved impractical in view of large inventories of unlabeled rims that exist and will exist long after rim labeling is begun. In establishing the later effective date, the agency noted that it was considering the possibility of eliminating this requirement entirely, to simplify the phase-in of properly marked rims as they become available. Experience with phase-in of newly regulated equipment in other areas such as tires and brake hoses has demonstrated that the requirement for labeled equipment on and after a particular date can create substantial inventory and potential economic waste problems. In view of experience that the delay of labeling requirements has not substantially impeded certification verification and defect actions, the NHTSA has decided to withdraw the requirement (that appears as the last sentence of S5.1.1). It is noted that withdrawal of this requirement does not affect the requirement of S5.1.2 that rims be listed as suitable by the tire manufacturer for use with the tires that equip the vehicle, or the requirement of S5.2 that rims be labeled with specified information.

*Mobile structure trailers.* With regard to the applicability of this standard and other standards as a general matter, the NHTSA takes this opportunity to publish in the *Federal Register* its conclusion that enactment of the National Mobile Home Construction and Safety Standards Act of 1974 (12 U.S.C. 5401 et seq.) (the Mobile Home Act) impliedly repealed this agency's authority to regulate mobile homes. This conclusion was announced in a May 5, 1976,

letter to the Department of Housing and Urban Development that stated in relevant part:

The National Mobile Home Construction and Safety Standards Act of 1974 (42 U.S.C. 5401 et seq.) (the "Mobile Home Act") established within the Department of Housing and Urban Development a comprehensive program for the regulation of mobile homes. We have concluded that one result of that statute's enactment was the implied repeal of the NHTSA's authority with respect to mobile homes. Accordingly, we consider that the enactment has the effect of amending the Vehicle Safety Act's definition of "motor vehicle" to exclude "mobile homes" as the latter term is defined in the Mobile Home Act.

The effect of this conclusion is that tire and rim selection for mobile homes (known as "mobile structure trailers" by the NHTSA) is no longer subject to Standard No. 120 or other regulations issued under authority of the Act. For this reason, references to "mobile structure trailer" in Standard No. 120, Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, and the general definitions section of Part 571 (§ 571.3) are deleted.

On the same subject, a May 25, 1976 (and supplementing July 7, 1976), letter from Firestone to the NHTSA asked whether tires manufactured exclusively for mobile homes and tires that are used on mobile homes (although manufactured for other uses) are subject to regulation under the Act. Similar questions were raised as to the status of rims, some of which are designed exclusively for use on mobile homes and some of which are used on mobile homes and other vehicles.

As for tires, Standard No. 109 applied to "tires for use on passenger cars" and Standard No. 119 applies to "tires designed for highway use on [specified motor vehicles]." By these terms, neither standard applies to tires designed exclusively for use on mobile homes. In the case of tires actually used on mobile homes but designed for use also on vehicles subject to the Act, the agency considers such tires to be subject to the standard's requirements because they con-

stitute motor vehicle equipment as that term is defined in § 102(1) of the Act.

As for rims, Standard No. 110 contains specifications only for rims that equip passenger cars and therefore contains no requirements that would directly require performance of a rim that was installed on a mobile home. Standard No. 120 applies to rims "for use on" MPV's, trucks, buses, motorcycles, and trailers (other than mobile structure trailers) and therefore would not apply to rims designed exclusively for use on mobile homes. In the case of rims designed for use on any of the motor vehicle types listed, the NHTSA would consider Standard No. 120's requirements applicable, and labeling in accordance with S5.2 would be required.

*Rim marking.* The second requirement of Standard No. 120 is an equipment requirement specifying five items of information (six in the case of multipiece wheels) that must appear on any rim for use on MPV's, trucks, buses, trailers, or motorcycles. The requirements for location of the information varies according to the type of information and whether the rim is part of a single or multipiece wheel. In answer to a question raised by Kelsey-Hayes and Motor Wheel, it is confirmed that these marking requirements have no bearing on the use of the rim on passenger cars, except as future labeling requirements in Standard No. 110 might prohibit one or more of the items required by S5.2. This eventually is considered to be extremely unlikely.

Based on a comprehensive review of the petitions for reconsideration, the agency has decided that some requested modifications in labeling requirements are justified. The Japanese Automobile Manufacturers Association and Suzuki asked that required labeling be permitted to be embossed as well as impressed on the rim. Volkswagen (and representatives from Motor Wheel and Goodyear in a February 4, 1976, meeting with the NHTSA) asked that rim labeling be permitted on the disc portion of a single-piece wheel. The agency considers these suggestions to constitute justifiable options that would not diminish the level of motor vehicle safety represented by the standard, and the standard is accordingly amended.

Motor Wheel requested amendment of the standard to state that labeling of multipiece rims is permitted in the bolt hole area. The agency does not consider the addition of advisory information to be a desirable drafting practice because the mention of bolt hole locations would imply that some restriction on location exists when in fact it does not. In answer to another question from Motor Wheel, more than one "rim type designation" on rim components of a multipiece wheel is permitted by the standard.

Motor Wheel and Goodyear also asked if numbers that contain decimals or "trailing zeros" (e.g., 7.50) could be shortened by deleting the decimal and "trailing zero." The agency believes that abbreviation by dropping the zero will not be confusing and amends the standard to include an example of such abbreviation. Confusion would result from dropping the decimal.

In response to a request by Motor Wheel and Budd Company for a specific provision in S5.1.2 that the marking requirements only apply to newly manufactured wheels, the agency notes the general applicability statement in § 571.7, governing the applicability of all standards found in Part 571, states that "... each standard set forth in subpart B of this part applies according to its terms to all motor vehicles or items of motor vehicle equipment the manufacture of which is complete on or after the effective date of the standard." Thus, the standard only applies to rims manufactured on or after the effective date of S5.2.

Manufacturers asked for several revisions of the marking requirements which the agency has considered and concludes are unjustified. This discussion treats the requests in the order that the markings in question appear in S5.2.

With regard to the requirement for marking with a designation that indicates the source of the rim's published dimensions (S5.2(a)), Daido Corporation asked whether the Japanese Industrial Standards' symbol (a stylized combination of the letters J, I, and S) or the letters "JIS" would meet the requirements of S5.2(a)(3) for use of letter "J." The agency interprets its labeling requirements as strictly as any other portion of its requirements and concludes that neither "JIS" nor the JIS symbol would con-

form to the requirement of S5.2(a)(3). In response to a similar request by Volkswagen to permit "DIN" in place of "D," the agency has considered the idea of permitting the manufacturer the option of a choice of designations, and concludes they are undesirable in the interest of maintaining uniformity and comprehension.

Grove Manufacturing suggested that the single letter designations of "D" and "E" could be mistaken for the load ranges that appear on tires and on the certification label. The agency concludes that the designations on the rim are sufficiently separated to preclude confusion and therefore the recommendation by Grove is not undertaken.

The "rim size designation" required by S5.2(b) is defined in S4 to mean the rim diameter and width. Daido and Volkswagen asked that a width designation followed by a diameter designation be considered as satisfying the requirement for designation of diameter and width. The agency specified the existing order to distinguish rim designations from tire designations. This order of information is being considered as the uniform practice to be adopted by the International Standards Organization. For reasons of uniformity, the requests are denied.

Volkswagen asked that the "DIN" symbol be permitted to signify compliance of the rim with Standard No. 120 in place of the "DOT" symbol required by S5.2(c) for this purpose. The agency does not find that the requirement of § 114 of the Act for certification is satisfied by use of a designation that has a wholly different meaning. Volkswagen's request is therefore denied.

*Certification label.* The third requirement of Standard No. 120 is that information about suitable tires and rims for use on the vehicle, along with appropriate inflation pressure and speed restriction information, be placed on a label on the vehicle (S5.3). As amended April 29, 1976 (41 FR 18659, May 6, 1976), the standard requires that the information appear on the certification labels of vehicles manufactured on or after September 1, 1977.

Some manufacturers and the Truck Trailer Manufacturers Association (TTMA) objected to the provision of this information on grounds

that valid information already appears on the tires and rims that equip the vehicle, and that the information could mislead a person to think that only the listed tires and rims could be used on the vehicle. With regard to the first objection, the NHTSA disagrees and notes that an improper choice of tires or rims (as could occur by replacing original equipment with "custom" rims or the equivalent in tires) could permanently mislead vehicle owners as to the suitable selection of tires and rims. As for the possibility of misleading, the agency believes that a heading over the tire-rim listings (specifically, "SUITABLE TIRE-RIM CHOICE") can be added to the requirements for optional use by a manufacturer who believes the information would be otherwise misleading. With regard to General Motors' note that an owner should be guided by all available information on tire choice (e.g., information in the owner's manual), the agency notes its longstanding position that manufacturers may add statements referring the reader to other publications for additional information.

It is apparent from the examples cited by manufacturers that the decision to place all required data on the certification label could prove cumbersome in some cases, particularly those involving a heavy truck with several available axle combinations. In view of these problems, the agency has decided to remove the restriction on location and permit the information to appear on the certification label or on a separate label that conforms to the requirements for certification labels. The NHTSA notes that this option to provide information on a separate label responds to concern of the Truck Body and Equipment Association (TBEA) for the responsibilities of its final-stage manufacturing membership. The agency does not believe the tire and rim information would be as useful in a location entirely separate from the certification label, and it therefore declines to adopt General Motors' suggestion to use the Vehicle Identification label.

Motorcycle manufacturers and General Motors pointed out that the requirements for listing tire and rim information after GVWR in the case of vehicles, such as motorcycles, that only utilize one GVWR listing, is redundant and therefore wasteful of space. Other manufacturers sug-



gested that the tire-rim information was redundant in the case of multiple GVWR listings, although this is not the case because of the need to associate the appropriate GVWR with GAWR's that may exceed the GVWR. In any event, these comments suggest that GVWR and GAWR could be better linked by revision of the example format to reduce the amount of information that must be listed. The solution is to permit listing of the GVWR alone, followed immediately by corresponding GAWR's and appropriate tire-rim information. The clearer format would be used for single and multiple listings. This revision is described in the new example that accompanies the rule changes at the end of this notice. In conformity with this simplification, the rule is also amended to delete the requirements for GVWR tire-rim-inflation listings. Depending on manufacturers' reactions to the simplified format, a similar change could be undertaken for the passenger car example found in Part 567 (§ 567.4(h)(1)).

With regard to the items of information that must be listed in accordance with S5.3, General Motors and the TTMA argued that "tires . . . appropriate *as a minimum* for the GAWR" [emphasis added] could be construed to require tires with load rating less than those that the manufacturer would choose to recommend. To eliminate any ambiguity, the agency replaces "at a minimum" with "as specified by S5.1.2".

Suzuki asked whether "cold inflation pressure" means the maximum inflation pressure specified by the tire manufacturer. The TTMA also asked for clarification on this point. The answer is that the requirement does not call for maximum pressure, but the pressure specified by the tire manufacturer as sufficient to carry the load specified by the vehicle manufacturer as the tire's share of the assigned GAWR.

Michelin Tire Corporation noted that listing inflation pressure could be misleading in the case of tire designations that call for different inflation pressures depending on the tire construction. It is the agency's view that any possibility of confusion can easily be avoided by an indication that the tire designation represents a radial tire, so that a person substituting a non-radial tire size with the same designation is aware that the two tires are not identical.

The TBEA requested clarification of the term "maximum speed" as it appeared in the example that accompanied the final rule. The TBEA appeared to misunderstand the example as a reference to the speed capabilities of the vehicle instead of speed restriction of the tires. The agency has in mind only the rare tire types constructed for transit buses and mining and logging operations and so designated. Goodyear and the TTMA appeared to have the same mistaken impression of the requirement.

Speed-restricted vehicles have now been addressed under S5.1.2. In view of the confusion that arose over the requirement, and the agency's assumption that the users of these tires are knowledgeable in the use of the tires, it has been decided to drop the requirement of S5.3(d) altogether.

The TTMA raised several other questions with regard to the information that appears along with the GAWR. In answer to these questions, the effective dates of the standard are such that the manufacturer will be required to list the information specified by S5.3 on and after September 1, 1977. Also, it is not permissible to "bracket" the GVWR and GAWR values for a particular vehicle by specifying the minimum and maximum values that any tire-rim choice could provide. Section 567.4 of Part 567 requires that the GVWR and GAWR's representing the manufacturer determination of the particular vehicles' characteristics must be listed.

The standard does not require the information specified in S5.3 to be listed alongside the additional GVWR's and GAWR's that a manufacturer might list at the end of its certification label as reduced speed ratings. Lastly, the agency does not agree that the GAWR ratings for a semi-trailer are not related to the trailer's GVWR. While the trailer's axles do not support the entire weight of the vehicle, it is still the case that the various GVWR's that could be assigned to a semi-trailer are affected by the GAWR values that can be assigned, and that the GVWR probably differs depending on the GAWR value assigned. In this sense the GAWR's assigned to a semi-trailer's axles do "correspond" to its GVWR.

In accordance with Department of Transportation policy encouraging adequate analysis of the consequences of regulatory action (41 FR 16200, April 16, 1976), the agency herewith summarizes its evaluation of the economic and other consequences of this action on the public and private sectors, including possible loss of safety benefits. The new options, simplification, and reduction of marking and labeling requirements should make compliance with the standard less costly, while the changes are not expected to significantly reduce the level of motor vehicle safety. The exception for speed-restricted vehicles provided in S5.1.2 represents a correction of the requirements to reflect the agency's intent not to prevent the assignment of greater load-carrying capabilities to vehicles at lower speeds. Permitting this practice to continue will result in the avoidance of new costs in the economy.

In consideration of the postponement of effective dates already granted for rim marking and the tire information labeling, the agency concludes that the present effective date schedule permits adequate time for compliance.

In view of the three notices that have modified the text of Standard No. 120, the entire standard (incorporating the amendments made by this notice) is published for the convenience of persons affected.

In consideration of the foregoing, Chapter V of Title 49, Code of Federal Regulations, is amended . . . .

*Effective date:* Changes to the text of the Federal Register may be made immediately. The provisions of Standard No. 120 are in effect at this time, except as otherwise provided in the standard.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50)

Issued on January 28, 1977.

John W. Snow  
Administrator

**42 F.R. 7140**  
**February 7, 1977**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108****Motor Vehicle Lighting****(Docket No. 77-5; Notice 2)**

This notice was preceded by a notice of proposed rulemaking issued pursuant to a petition for rulemaking. It amends color specifications for motor vehicle signaling devices. This change is adopted to facilitate manufacturer conformance with OSHA requirements. The change slightly modifies the acceptable color coordinates for yellow (amber).

Effective date: January 1, 1979, with optional compliance permitted as of the date of publication of this amendment in the Federal Register.

For further information contact:

Bill Eason, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-2720).

Supplementary information: On October 25, 1976, the General Electric Company (GE) petitioned for an initiation of rulemaking to amend Federal Motor Vehicle Safety Standard No. 108 to substitute SAE Standard J578b, "Color Specification for Electric Signal Lighting Devices," September 1974, as the color standard for motor vehicle lighting equipment. GE has been confronted with an OSHA proposal to lower the maximum permissible level of arsenic used in glass making, and on that basis intended to eliminate arsenic entirely from its production. Clear glass made with a substitute

for arsenic apparently absorbs yellow dye in a manner that differs from glass made with arsenic, with the result that yellow light emitted through it no longer conforms to the color coordinates for yellow (amber) of SAE J578a, but would be within those for J578b. The NHTSA deferred immediate action because of the imminence of SAE J578c which contains color coordinates that are internationally accepted. On February 10, 1977, GE modified its petition, asking only for a definition of the color yellow (amber) identical to that specified in J578c.

Notice of the proposal was published on June 30, 1977, and an opportunity afforded for comment (942 F.R. 33334). Seven comments were received on the proposal, all of which concurred with it. The amendment is therefore adopted.

In consideration of the foregoing paragraph S4.1.5 of 49 CFR 571.108, Motor Vehicle Safety Standard No. 108 is amended. . . .

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1302, 1407); delegation of authority at 49 CFR 1.50)

Issued on June 8, 1978.

Joan Claybrook  
Administrator

**43 F.R. 25822-25823**  
**June 15, 1978**



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

### Motor Vehicle Lighting

(Docket No. 78-5; Notice 3)

*Action:* Final rule.

*Summary:* This notice establishes an alternate performance standard for most motor vehicle headlamps which would allow candlepower output on the upper beam to be double the amount currently permitted. It also establishes a marking code for identification and certification of the new headlamps. It also requires that headlamps be adjustable without the necessity of removing trim rings or other ornamental parts. The amendment is issued under the National Traffic and Motor Vehicle Safety Act which requires the issuance of appropriate safety standards. This standard will allow the production of headlamps, both as original and aftermarket equipment, that provide the driver with an increase in seeing distance, and that are marked to insure compatibility of replacement.

*Effective dates:* The photometric portion of the amendment is effective upon publication in the FEDERAL REGISTER. Lens marking and certification requirements are effective July 1, 1979. The headlamp adjustability requirement is effective October 1, 1979.

*For further information contact:*

Bill Eason, Office of Rulemaking, National Highway Traffic Safety Administration, Washington, D.C., 202-426-2720.

*Supplementary information:* On February 23, 1978, the NHTSA published in 43 FR 7451 a notice of proposal rulemaking (NPRM) that would reduce accidents on the Nation's streets and highways by allowing the production of motor vehicle headlamps with greater light output. The proposal was issued in response to petitions for rulemaking submitted

by GTE, Sylvania, General Motors Corp., Koito Manufacturing Co. Ltd. and General Electric Co.

Federal Motor Vehicle Safety Standard No. 108 (49 CFR 571.108), *Lamps, Reflective Devices and Associated Equipment*, requires motor vehicles other than motorcycles to be equipped with a headlighting system that meets, among other specifications, minimum and maximum photometric output values specified by the Society of Automotive Engineers in SAE Standard J579a, Sealed Beam Headlamp Units for Motor Vehicles, August 1965. Under this standard, the maximum candlepower (cp) of headlamps in operation on motor vehicles shall not exceed 75,000. The SAE revised its standard in December 1974 (J579e), one effect of which was to raise the system total output ceiling to 150,000 cp. Shortly thereafter NHTSA added paragraph S4.1.1.33 to Standard No. 108 to allow manufacturers to comply with J579e if they wished, provided that the ceiling imposed by J579a was not exceeded. NHTSA's amendment also imposed maximum design wattage limitations at 12.8 volts. These standards apply to traditional headlamp systems with circular lenses and to a newer system consisting of four lamps with rectangular lenses. When SAE adopted Recommended Practice J1132 "142 mm x 200mm Sealed Beam Headlamp Unit", in January 1976, establishing specifications for a two-lamp rectangular headlamp system, NHTSA added S4.1.1.34, effective November 1, 1976, allowing this system, without imposing additional candlepower output restrictions. The reason for this regulatory anomaly with NHTSA's intent to raise the candlepower ceiling on the three other headlighting systems within the near future (now accomplished by this amendment) and the desire

not to impose a limitation on manufacturers of the newest system which would be in effect for only a relatively short time. NHTSA research has demonstrated that an increase in photometrics to a maximum of 150,000 cp will enhance seeing ability without any significant increase in glare from properly aimed headlights, but that photometric output exceeding 150,000 cp results in only a marginal increase in visibility with an increase in glare.

In addition, NHTSA proposed establishment of a marking code to be embedded in the lens of each headlamp designed to comply with SAE J579c to enable the agency to determine with ease which version of Standard No. 108 applies to the headlamp, as well as enabling a consumer to replace original equipment headlamps with lamps of compatible photometric output. A marking system identifying headlamps as type "1A", etc. currently exists. The new proposed code consists of three characters. The first is a number indicating the number of beams produced by the lamp, i.e., 1 or 2. The second character is a letter indicating whether the headlamp is a large or small rectangular or circular headlamp. The final character indicates the version, or requirement, of Standard No. 108 which apply to the lamp. For the present this will be "1", until requirements change to the extent that a new identification number is required, as it is anticipated that future headlighting systems may have different wattages, beam patterns and other characteristics and could not serve as replacements for J579c headlamps.

The agency proposed that types 1A, 2A, and 2B would retain their present nomenclature (plus the final digit), while 5 $\frac{3}{4}$  inch diameter (146 mm diameter) headlamps will be identified by the letter "C", and 7 inch diameter lamps (178 mm diameter) with the letter "D". Thus, a Type 2D1 headlamp would be the new identification for a Type 2 (7 inch) headlamp permitted a maximum candlepower output of 75,000. Also on the lens, at a location of the manufacturer's choosing, would be the letters "DOT" certifying compliance with requirements of Standard No. 108. Manufacturers wishing to manufacture high intensity lamps will probably change lens molds anyway to provide other marking and to secure improved beam pattern control.

Other proposed changes include substituting SAE J571d for J571c and J580b for J580a as two of the referenced standards on headlamps. SAE J571d incorporates Figure 2 of present Standard No. 108 which would be deleted from the body of the standard under the proposal. SAE J580b differed from J580a primarily by the addition of a definition for "aiming screws", changes of the aiming adjustment test procedure, and the requirement of aim retention with specified applied forces.

More than 380 comments on the proposal were received from manufacturers, State motor vehicles officials, and motorists. All comments have been considered. NHTSA has separated the comments into six major areas which will be discussed separately.

#### I. THE NEED FOR HIGH INTENSITY HEADLAMPS

The major issue which concerned the commenters was whether there is a need for headlighting systems capable of producing 150,000 candlepower, whether the sealed beam headlamp is the lamp best suited to provide high intensity lighting, and whether this high intensity lighting tends to produce an unacceptably high level of glare.

Motorists who commented to Docket No. 78-5 appear divided on the question of high intensity headlamps. There are those whose driving is largely urban in nature who argue that their present headlamps are adequate for their motoring needs. There are others in rural areas, who appear to use the upper beam more frequently than the average driver, and who want a brighter headlighting system for their vehicles. This division of opinion confirmed NHTSA's belief that allowance of higher intensity headlamps should be made on an optional basis and that the manufacture of present design headlamps should continue.

Statistics indicate that there is a significantly greater number of deaths and injuries that occur at night, and that cannot be totally attributed to alcohol or fatigue. A disproportionate number of these occur in rural areas where use of the upper beam is more likely to be required due to lack of ambient roadway light, and to occur in the absence of other vehicular traffic. While it

is not possible to determine how many of those casualties could have been prevented by better lighting, it is likely that the rate would have been reduced if the vehicles had been equipped with high intensity headlamps; NHTSA's research data indicates that the average night seeing distance for speeds of 50 mph and higher is less than the average braking distance and reaction time at that speed. NHTSA's review shows that a headlighting system using 150,000 candlepower increases nighttime seeing distance by over 20 percent where there are no cars approaching. In addition, research indicates that a sizeable number of pedestrian accidents occurring in rural and suburban areas could be reduced by improvements in roadway lighting; it is likely that better headlamps could provide some of these improvements.

Several commenters who are proponents of European unsealed lighting systems questioned whether the sealed beam system is the best medium for a high intensity headlamp, and suggested it would create an unacceptably high level of glare. All of NHTSA's extensive research on vehicle lighting has considered both disability glare, measured in possible loss of seeing distance, and discomfort glare, assessed by test subjects who were scientifically rated for visual acuity and glare tolerance. The subjects undertook on-road driving tests which evaluated their seeing distances while driving cars equipped with different headlighting systems, including the proposed high intensity systems.

The conclusion of the NHTSA research, supported by the findings of other expert researchers, is that the safety of night driving on the upper beam would be improved by the proposed level of intensity, with only minor degradation of seeing distance from misuse of that beam. Glare is a problem even at intensities below 75,000 candlepower. As headlight intensity increases to 150,000 candlepower there is an increase in disability glare, however it is less than proportionate to the increase in intensity. The 20 percent increase in seeing distance when no car is approaching contrasts favorably with the minor degradation in the worst case, when the upper beam is misused. In that case, when two vehicles utilizing 150,000 candlepower headlamps approach each other on the upper beam and both

fail to switch to lower beam, seeing distance is reduced only approximately 1.5 percent when compared to a corresponding situation involving vehicles utilizing 75,000 candlepower headlamps. This minor degradation from increased disability glare is transient. Furthermore, high intensity headlights are more readily noticeable and may improve the response of opposing drivers to signals to dim upper beam headlights. NHTSA also recognizes that the level of disability glare experienced when driving is considerably more sensitive to highway environmental factors than to headlight intensity.

In addition to its research, NHTSA has been sensitive to the views of those drivers who report that they are bothered by glare from headlamps of the levels of intensity now permitted. NHTSA has reviewed its own research and has uncovered no data indicating that disability glare (that glare which reduces seeing ability) from current headlamps creates a driving hazard to the average vehicle operator or to older drivers. Discomfort glare varies with drivers, however, and generally the eyes of older drivers are more sensitive to stronger lights whatever their sources.

## II. HEADLAMP LENS MARKINGS

Notice 1 proposed that the lenses of the new high intensity headlamps be marked with an identification code and with the letters "DOT" constituting a certification that the lamps comply with applicable Federal motor vehicle safety standards.

As was to be expected, this aspect of the proposal was of little interest to the general public. Comments were received only from States, manufacturers, and one retailer. Industry did not express strong support for the proposed code, preferring instead to allow each manufacturer to retain its own system of trade numbers as a means of headlamp identification. Most requested that sufficient time be allowed to implement the new code if NHTSA decided to adopt it.

NHTSA has decided to adopt the code as proposed with an effective date of July 1, 1979. The lenses of headlamps have contained a lens code for several decades as a means of identification and the rule extends the practice in a logical

fashion. Trade numbers are not only more numerous than the code characters, but they are changed for specific technical design changes not necessarily related to interchangeability or performance of headlamps. Use of the NHTSA code will simplify lamp replacement for the consumer who will be able to identify a lamp by its universally applicable code number rather than by manufacturers' specific trade number. Since then lens code is visible with the lamp installed and the trade number is not, the code will give consumers and inspection stations a ready means of determining whether a balanced lighting system is installed on the vehicle. The proposal did not specify the minimum size of the characters, and the amendment will allow the manufacturer to choose the size and location on the lens most appropriate for his lamp design.

The great majority of comments opposed mandating use of the "DOT" symbol on the lens. Many felt that placing it above the lens marking code would interfere with beam refraction. Others commented on the cost that would be incurred in changing lens molds. Some suggested that the size and placement of the characters be the manufacturer's choice. Two commented that they felt the proposal was illegal under section 114 of the National Traffic and Motor Vehicle Safety Act which allows equipment items to be certified by a label or tag on the shipping containers as an alternate means to certification on the item itself.

The NHTSA has decided to adopt the proposed means of lens certification as mandatory for the new headlamps, effective July 1, 1979, with the size and placement of the "DOT" characters to be decided by the manufacturers. Thus, there need not be a problem of light interference and the lens mold may be changed at the same time for both the marking and certification code changes. The agency rejects the argument that it is illegal under section 114 to require items of equipment to bear certification markings. Such a requirement is well within the discretion accorded the Administrator under the act and general legal principle, and is consistent with the intent of the framers of the act. The NHTSA currently requires equipment items such as tires and brake hoses to bear the DOT symbol as mandatory certification.

### III. HEADLAMP WATTAGE

Comments were made on the proposed headlamp wattages requesting increases, decreases, and minor changes. In the proposal the 2A1 headlamp was specified as 40 watts for upper beam and all comments on watts indicated that it should be a higher figure, generally 43 watts. The NHTSA agrees and accordingly has revised the 2A1 wattage to 43 watts.

The wattage for a system using 2A1 lamps would then be 6 watts or 3 percent higher than a system using 2C1 headlamps, whereas the two systems should be allowed the same level of performance. Since there should be no vehicle electrical problems associated with a 3-percent change in a headlamp intended for the after-market, the 2C1 headlamp is provided the same maximum of 43 watts on upper beam.

The proposed type 2D1 headlamp wattage of 70 watts for upper beam and 65 watts for lower beam exceeds present system wattages by 15 percent. This value would have provided the same wattage (and therefore performance) for all low beams of all systems and would have provided equivalent performance to the 2B1 headlamp system on upper beam. The comments and NHTSA information both indicate that an attempt to equate systems to this degree could possibly cause some electrical problems on older vehicles using the new lamps as replacement headlamps. Because of this concern of the after-market the NHTSA is reducing the wattage of the 2D1 headlamp to 65 watts for upper beam and 55 watts for lower beam.

Some comments recommended only a 1-watt change for some lamps. Such a minor change is insignificant to the effect of lighting performance on vehicle electrical systems and therefore the NHTSA has retained the same values as proposed.

### IV. INCLUSION OF SAE J580b

The proposal to substitute SAE Standard J580b, *Sealed Beam Headlamp*, occasioned some comment. Among other things, J580b requires that headlamp aim be adjustable without removal of trim rings or other vehicle parts.

While it is believed that most of the industry currently conforms to this requirement, several



manufacturers commented that leadtime will be required to implement this change. The NHTSA has therefore decided to defer mandatory compliance with this portion of J580b until October 1, 1979.

#### V. MISCELLANEOUS CHANGES

In the proposed deletion of paragraph S4.1.134, the allowance of two Type 2B1 headlamps on motorcycles was inadvertently deleted and is hereby reinstated. Notice 1 also inadvertently omitted allowance of current low intensity headlamps on passenger cars and motor vehicles less than 80 inches in overall width. This was corrected by Notice 2 (43 FR 16783) and is retained in the amendment.

#### VI. OTHER ISSUES

A sizable number of comments from individuals and suppliers felt that there should be no amendment of existing headlamp requirements without consideration being given to unsealed headlighting systems that meet European standards.

In brief, these headlamps, popularly known as "quartz halogen", do not meet Standard No. 108's requirements for sealed beam construction, and mechanical aimability. Many unsealed systems also exceed the newly increased candlepower maximum of 150,000. These commenters frequently attacked the sealed beam concept as "outmoded" and "40 years behind the times", espouse the do-it-yourself philosophy of headlamp aim, and praise the "superior" lighting provided by their imported unsealed headlamps.

These issues are generally not within the scope of the rulemaking proposal under consideration, but have been considered, where appropriate, as supportive of a desire for better headlighting. It is felt that the sealed headlamps that will be shortly available by virtue of this rulemaking action, which NHTSA understands will utilize the halogen cycle, will provide the

brighter lighting that many people seek. The NHTSA has always expressed its willingness to consider alternate technologies supportable by objective data upon which safety performance standards can be based. In recognition of the public interest in the issue, NHTSA has placed relevant public correspondence and other materials in a general reading file "Halogen Headlamps" available for inspection in Room 5108 at 400 Seventh Street, S.W., Washington, D.C.

In consideration of the foregoing, 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, is hereby amended . . . .

In evaluating the cost impact of this rulemaking action, the NHTSA has concluded that there will be none with respect to headlamp manufacturers as the amendment provides an optional means of conformance to Standard No. 108. With respect to the requirement of J580b that headlamps be adjustable without removal of trim, it is believed that most manufacturers already comply. Those who do not may find it necessary to modify trim or sheetmetal or grille parts on a one-time basis but it is concluded that these modifications would be minor and that no significant costs would be incurred.

Because the amendment with respect to candlepower relieves a restriction it is made effective July 27, 1978.

The lawyer and program official principally responsible for this rule are Z. Taylor Vinson and Bill Eason, respectively.

(Secs. 103, 112, 114, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1403, 1407); delegation of authority at 49 CFR 1.50.)

Issued on July 20, 1978.

Joan Claybrook  
Administrator

43 F.R. 32416  
July 27, 1978



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

### Motor Vehicle Lighting

(Docket No. 77-1; Notice 2)

This notice amends Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*, to specify that rear side marker lamps on large trailers cannot be located higher than 60 inches above the road surface. This action was taken to achieve regulatory consistency with a parallel action of the Federal Highway Administration's Bureau of Motor Carrier Safety (BMCS) which has acted pursuant to a petition by the International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America ("Teamsters Union"). The effect of the limitation will be to make it more likely that the trailer rear side marker lamp can be viewed in the outside rear view mirror of the tractor pulling it, acting as a reference light by which the tractor driver may check the tracking of the trailer's rear end.

*Effective date:* March 1, 1979.

*For further information contact:*

Marx Elliott, Crash Avoidance Division,  
Office of Vehicle Safety Standards, National  
Highway Traffic Safety Administration, 400  
Seventh Street, S.W., Washington, D.C.  
20590, 202-426-1714.

*Supplementary information:* On January 17, 1977, NHTSA proposed (42 FR 3187) that rear side marker lamps on trailers with an overall width of 80 inches or more be located "as far to the rear as practicable and as close as practicable to the lower rear corner". The existing requirement is that they be "as far to the rear as practicable" and "not less than 15 inches" above the road surface. This action was taken as a parallel to rulemaking conducted by BMCS which had the following history. BMCS published an advance notice of intent to

amend 49 CFR 393.14 to require large semi-trailers and full trailers operating in interstate commerce to have the rear side marker lamps at or near the lower rear corner (40 FR 31959). The purpose of the proposal was to enhance traffic safety by providing a driver of a tractor pulling such a trailer with a reference light visible in the outside rearview mirror through which he may check the tracking of the trailer's rear end at night or at such other times as the headlamps are required. The NHTSA tentatively determined that a companion amendment of Standard No. 108 was required to preclude a conflict between the requirements of that standard and the BMCS Regulations.

BMCS, having evaluated the comments to the Advance Notice, proposed (41 FR 47948) that rear side marker lamps be "as near as practicable to the lower rear corner, and visible in the rearview mirror of the truck tractor when the trailer is tracking straight behind the tractor." The NHTSA proposal required only that the lamps be located as close as practicable to the lower rear corner. The difference in requirements was dictated by the different safety missions of the two issuing agencies—that of NHTSA, to insure that motor vehicles are manufactured in accordance with Federal motor vehicle safety standards, and that of BMCS, to insure that commercial vehicles in interstate commerce are operated in accordance with that agency's safety requirements. Federal motor vehicle safety standards do not apply to a combination of vehicles (tractor and trailer) and it would not be possible to determine at time of manufacture whether the rear side marker lamp of the trailer would be visible in the rearview mirror of every possible tractor that could tow it.

Fifteen comments were received on the proposal, 11 supporting the reasoning relative to the relocation of the side marker lamp. Six of these, however, recommended that the agency consider establishing a mounting height range due to peculiarities of certain trailer designs. For example, side marker lamps mounted at the lowest position on trailers designed to carry snowmobiles, motorcycles, or boats would be subject to water, dust, mud and road debris. The R. E. Dietz Company supported the concept of a tracking light but suggested that a special light be provided for that purpose. The proposal was objected to by, among others, the Truck Safety Equipment Institute (TSEI), because it would eliminate the present option of allowance of a combination clearance—side marker lamp, mounted higher than 60 inches and because low mounted side marker lamps would not necessarily be visible in tractor rear view mirrors. The Recreational Vehicle Industry Association joined TSEI in objecting on the ground that an option would be eliminated. It also cited potential problems with obscuration by mud or other road matter. Truck Trailer Manufacturers Association was not convinced that the location of the side marker lamp was such an important safety matter that it needed coverage by a Federal regulation. Concern was also expressed that the amendment would not achieve its purpose unless the marker lamps were required to project light toward the towing vehicle, and unless a candle-power output for that light was required.

NHTSA concurs with those commenters who expressed concern about low-mounted side marker lamps, and who suggested that a mounting height range from 15 to 60 inches would be preferable, and has decided to amend Standard No. 108 to reflect this comment. BMCS is joining NHTSA in a companion amendment pub-

lished today. Such a range will also afford a manufacturer more flexibility with respect to trailers of unique design, and should also come closer to the goal of providing visibility of a reference light in the mirrors of various sized towing vehicles. NHTSA realizes that the clearance—side marker lamp option will no longer be available for those trailers on which the clearance lamp is at a height greater than 60 inches, but has concluded that a height limitation must be adopted to insure a greater likelihood that the purpose of the rulemaking action is achieved. Adequate lead time is being afforded for design modifications. With respect to visibility of the side marker lamp by the driver, it is true that a lamp meeting Standard No. 108's minimum requirement that it be visible at a 45 degree angle from its mounting plane might not provide the reference light desired, but in common practice most of the rear side marker lamps appear to exceed this angle and should be visible in the rear view mirror. Further, NHTSA believes that the light output of current side marker lamps is sufficient to provide the desired cue.

In consideration of the foregoing Table II of 49 CFR 571.108 Motor Vehicle Safety Standard No. 108 is amended. . . .

The program official and lawyer responsible for the development this amendment are Marx Elliot and Taylor Vinson, respectively.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50).

Issued on August 25, 1978.

Joan Claybrook  
Administrator

**43 F.R. 38832-38833**  
**August 31, 1978**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices and Associated Equipment

(Docket No. 78-08; Notice 2)

**ACTION:** Final rule.

**SUMMARY:** This notice amends Motor Vehicle Safety Standard No. 108 to increase the maximum permissible candlepower for single compartment tail lamps while extending requirements for contrast between stop (signaling) and tail (marking) functions at test points below the horizontal. This action is taken in response to a petition for rulemaking from industry. The effect of the increase will be to relieve a burden on manufacturers who must monitor production closely to insure continuing compliance of existing lamp designs with the existing limitation.

**EFFECTIVE DATE:** The amendment is effective immediately but compliance with the contrast requirements is not mandatory until July 1, 1980.

### FOR FURTHER INFORMATION CONTACT:

Marx Elliott, Crash Avoidance Division, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. (202-426-2720).

**SUPPLEMENTARY INFORMATION:** A limit of 15 candlepower on photometric output at test points on or above the horizontal is imposed on single compartment tail lamps by 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, *Lamps, Reflective Devices, and Associated Equipment*. The intent of this limitation is to eliminate the possibility of excessive glare, and to insure that the ratio between stop lamps and tail lamp output offers sufficient contrast that the stop function can be readily identified when it is actuated.

On February 18, 1977, Truck Safety Equipment Institute (TSEI) petitioned for rulemaking to amend Standard No. 108 to increase the permissible

maximum output of single compartment tail lamps to 18 candlepower. This figure is derived from SAE Recommended Practice J256a Service Performance Requirements for Motor Vehicle Lighting Devices and Components, June 1972, which permits tail lamp output to be 120 percent of the maximum value specified in SAE Standard J585d, Tail Lamps (Rear Position Light) August 1970. The reason for TSEI's request is that the 15 candlepower limitation has become "an unnecessary burden on manufacturers who must attempt to monitor their productions in an attempt to insure a strict compliance with this maximum output". TSEI argued that an increase would have no detrimental effect upon safety because there has been no limitation on candlepower output below the horizontal and it was reasonable to assume that there must be countless driving situations every day "where the following driver is exposed to lamp candlepower outputs from approximately 15 cp to 22 cp" without any evidence of hazardous driving conditions because of glare. The basis of the petition, therefore, was that a restriction should be relaxed for economic reasons, and that the relaxation will have a neutral effect upon safety. The NHTSA granted TSEI's petition for rulemaking and proposed that the maximum output of single compartment tail lamps be raised to 18 candlepower, and that the current ratio of candlepower output by stop and tail lamps in combination lamps be maintained at test points above the horizontal and extended to test points below the horizontal to minimize problems of glare. NHTSA proposed the extension of the ratio to test points below the horizontal to provide protection equivalent to that at points above the horizontal. Standard No. 108 allows combination stop and tail lamps to be mounted as high as 72 inches above the road surface while in today's passenger cars the driver's eye point is much lower, only 38 inches to 48 inches above the road surface.

A notice of proposed rulemaking was published on this subject on May 4, 1978 (43 FR 19250), and an opportunity afforded for comment.

Twenty-seven comments were submitted on the proposal. There was one objection to the increase in candlepower, and two to extension of contrast ratios. All other comments supported it.

An important suggestion made was that NHTSA adopt SAE Standard J585e, September 1977 as the referenced standard on tail lamps since the SAE revision encompassed both of NHTSA's proposals. NHTSA concurred with this recommendation and is amending the standard in this fashion. J585e is otherwise identical to J585d except for the addition of a final sentence to Note 4 which prescribes an alternative way for computing the candlepower ratio for combination lamps when certain conditions are met.

The Japanese Automotive Manufacturers Ass'n. Inc. (JAMA), objected to the extension of the contrast ratio, principally because of its effect upon the motorcycle industry. In JAMA's opinion there is no need for the requirement to cover motorcycles as lamps are not mounted at a height greater than 38 inches. NHTSA does not concur with this comment. The amendment will insure that there is no confusion when the driver's eye reference point is lower than the average 38 to 48 inches above the road surface. This situation could occur when a motorcycle is on a hill in front of the driver of another vehicle. The mandatory compliance date of the requirement, July 1, 1980, should afford sufficient time for tooling of new lamps if needed.

Chrysler Corporation commented that it saw no need to adopt intensity ratio requirements for the test points below horizontal since photometric requirements for tail and stop lamps are the same, whether above or below horizontal. While the requirements are the same, the values prescribed are minimal and a manufacturer may establish its own values above the minimum level. NHTSA has concluded that the amendment would assure that the ratio now required above the horizontal would also be maintained below. It would also avoid use of the wrong replacement lamps or lens.

California Highway Patrol suggested that test point 5 D-V should be added to those at which not less than a 5 to 1 ratio is required. The NHTSA cannot add it at this time since it was not part of the rulemaking proposal, but consideration will be given to it in future rulemaking.

American Motors Corporation supported the proposal but commented that the 120 percent value specified in J256a should apply to all tail lamps and not just single compartment designs. This suggestion is beyond the scope of the proposal and NHTSA will consider it in future rulemaking.

Dry Launch suggested an increase from 15 to 20 and 25 candela. This suggestion was also considered beyond the scope of the proposal. Those values are permitted for two and three compartment lamps because the light sources are distributed, and NHTSA does not believe that excessive glare should be risked by increasing the maximum from 18 to 20 or 25 candela for single compartment lamps.

The proposal was objected to by G. F. Meese in whose opinion the upper limit should be 10 candela because excessive brightness irritates following drivers. The NHTSA did not agree with this comment. There appear to be instances in which the upper limit of 10 candela, which is being proposed by Mr. Meese, has been exceeded, and there is no indication that this causes any hazardous driving conditions because of glare.

In consideration of the foregoing 49 CFR 571.108, Motor Vehicle Safety Standard No. 108 is amended as follows:

1. Paragraph S4.1.1.28 is revised to read:

S4.1.1.28 Each tail lamp on any motor vehicle manufactured before June 1, 1980 may be designed to conform to SAE Standard J585d, Tail Lamps, August 1970.

2. Table I and Table III are amended so that the applicable SAE Standard for tail lamps in the final column of each Table is "J585e, September 1977."

In accordance with Department of Transportation policy encouraging adequate analysis of the cost and other consequences of regulatory actions (41 FR 16201, April 16, 1976), the NHTSA has evaluated the economic and other consequences of this amendment on the public and private sectors and has concluded that there is no cost increase required by an allowance of an increase in candle power in single compartment tail lamps. While there should be no increase associated with maintenance of contrast ratios at test points below the horizontal in combined lamp configurations, the NHTSA requested comments on this factor and received none.

The program official and lawyer responsible for the development of this proposal are Marx Elliott and Taylor Vinson, respectively.

Issued on December 13, 1979.

Joan Claybrook  
Administrator

**44 F.R. 75385**  
**December 20, 1979**

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# **PREAMBLE TO AN AMENDMENT TO FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 108**

## **Lamps, Reflective Devices and Associated Equipment**

**(Docket No. 69-19; Notice 18)**

**ACTION:** Final rule.

**SUMMARY:** This notice finalizes the interim amendment of Motor Vehicle Safety Standard No. 108 adopted effective September 1, 1978, which retained the requirement that stop lamp lenses on motor driven cycles be a minimum of 3½ square inches.

**EFFECTIVE DATE:** The amendment is effective immediately.

**FOR FURTHER INFORMATION CONTACT:**

Marx Elliott, Crash Avoidance Division, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. (202-426-2720).

**SUPPLEMENTARY INFORMATION:** On August 31, 1978, the agency published an interim rule and request for comments (43 FR 38831) deleting the requirement that low-speed motor driven cycles (mopeds) have larger stop lamps effective September 1, 1978, and asking whether the amendment should be made permanent. NHTSA noted it did not intend to include these vehicles in earlier amendments increasing the size of stop lamp lenses from a minimum of 3½ square inches to 8 square inches. The agency believed that moped

conspicuity and safety would be reduced if lamps on these low-powered vehicles were required to have a larger lens area without being required also to have higher light output. The effect of the interim amendment, therefore, was to retain the existing requirements.

Three comments were received in response to that Notice. Two supported the rule but the California Highway Patrol opposed it on the basis that moped rear lighting needs improvement. As noted above, simply reinstating the requirement for increased lens area would not improve safety. However, the agency intends to ask for comments in the near future on this aspect of moped safety.

In consideration of the foregoing, NHTSA hereby makes final the interim revision of paragraph S4.1.1.27 of 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, adopted on August 31, 1978.

The program official and lawyer responsible for the development of this rule are Marx Elliott and Taylor Vinson respectively.

Issued on February 19, 1980.

Joan Claybrook  
Administrator

**45 F.R. 13736  
March 3, 1980**



# PREAMBLE TO AN AMENDMENT TO FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 108

## Lamps, Reflective Devices and Associated Equipment

(Docket No. 77-1; Notice 4)

**ACTION:** Correction.

**SUMMARY:** This notice corrects a typographical error in the notice of correction published on December 28, 1978 (43 FR 60472). The error appears in the designation of the table, identifying it as "Table III" when the correct designation is "Table II". The effect was to change the heading of the last column in Table III from "Applicable SAE standard or recommended practice" to "Height above road surface measured from center of item on vehicle at curb weight". It is therefore necessary to correct the heading to Table III.

### FOR FURTHER INFORMATION CONTACT:

W. Marx Elliott, Office of Rulemaking National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590. (202-426-2720).

Accordingly, Title 49, Code of Federal Regulations, § 571.108 is amended to read:

TABLE III.—*Required Motor Vehicle Lighting Equipment*

Item	Applicable SAE standard or recommended practice
*	*

The lawyer and program official principally responsible for this correction are Z. Taylor Vinson and W. Marx Elliott, respectively.

Issued on February 28, 1980.

Michael M. Finkelstein  
Associate Administrator  
for Rulemaking

**45 F.R. 14577**  
**March 6, 1980**



**PREAMBLE TO AN AMENDMENT TO  
FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 108**

**Lamps, Reflective Devices, and Associated Equipment  
(Docket No. 78-12; Notice 2)**

**ACTION:** Final rule.

**SUMMARY:** This notice amends Motor Vehicle Safety Standard No. 108 to allow an optional method of measuring side marker lamp light output for all vehicles less than 30 feet in overall length, regardless of width. This option currently applies to all vehicles less than 80 inches in overall width, regardless of length. This amendment is in response to a petition for rulemaking submitted by Chrysler Corp. The effect of the amendment is to remove a restriction on vehicles which are normally built in versions less than 80 inches in overall width but which have derivatives that exceed this dimension.

**EFFECTIVE DATE:** Date of publication of final rule. Since the amendment relieves a restriction, it may be made effective immediately, July 3, 1980.

**FOR FURTHER INFORMATION CONTACT:**

John Simeroth, Crash Avoidance Division,  
Office of Vehicle Safety Standards,  
National Highway Traffic Safety  
Administration, 400 Seventh Street, S.W.,  
Washington, D.C. 20590 (202-426-2715)

**SUPPLEMENTARY INFORMATION:** A Notice of Proposed Rulemaking on this subject was published on September 7, 1978 (43 FR 39839).

Standard No. 108 requires the photometric requirements for side marker lamps to be met at test points 45 degrees outboard and inboard of the lateral center line passing through the lamp. However, if a vehicle is less than 80 inches in overall width, paragraph S4.1.1.8 of Motor Vehicle Safety Standard No. 108 allows photometric measurements of side marker lamps to "be met for all inboard test points at a distance of 15 feet from the vehicle and on a vertical plane that is

perpendicular to the longitudinal axis of the vehicle and located midway between the front and rear side marker lamps." This results in a measurement of less than 45 degrees instead of a fixed 45 degrees.

Chrysler Corp. petitioned that the option be available to all vehicles regardless of width. In its opinion, the effect of differing requirements imposes needless restrictions on smaller size vehicles normally built in versions less than 80 inches but which have special derivatives which exceed this width:

"For example, a pick-up truck may be designed with wraparound front or rear lamps [that meet S4.1.1.8]. If dual rear wheels are installed on this same vehicle, its width will exceed 80 inches and different side marker lamp requirements will apply \* \* \* [and] auxiliary lamps may have to be used on these wider vehicles."

The NHTSA agreed with Chrysler's views, but with the reservation that the exception should not apply to vehicles whose overall length is 30 feet or greater. None of these vehicles are currently eligible for this option since all exceed 80 inches in overall width. Those vehicles are required to have an intermediate side marker lamp that is centrally located between the front and rear side marker lamps. All three markers need to be clearly visible to motorists from the side so that the overall vehicle size is evident. Thus, for vehicles 30 feet or longer the 45 degree visibility angles are more appropriate than the provisions of paragraph S4.1.1.8. Accordingly, it was proposed that S4.1.1.8 of 49 CFR 571.108 Motor Vehicle Safety Standard No. 108 be revised by deleting the words "80 inches in overall width" and substituting "30 feet in overall length."

Six comments were received in response to the Notice of Proposed Rulemaking, all of which supported it. Typical was the opinion of American

Motors that it is inappropriate to have differing side marker requirements based on a criterion related to vehicle width when the primary purpose of the lamp is to indicate overall length.

In consideration of the foregoing, paragraph S4.1.1.8 of 49 CFR 571.108, Motor Vehicle Safety Standard No. 108 is revised as follows:

§571.108 Motor Vehicle Safety Standard No. 108

\* \* \* \*

**S4.1.1.8** For each motor vehicle less than 30 feet in overall length, the photometric-minimum candpower requirements for side marker lamps specified in SAE Standard J592e "Clearance, Side Marker, and Identification Lamps," July 1972, may be met for all inboard test points at a distance of 15 feet from the vehicle and on a vertical plane that is perpendicular to the longitudinal axis of the vehicle and located midway between the front and rear side marker lamps.

The agency has considered the impacts of this

amendment under Executive Order 12044, "Improving Government Regulations," and determined that they are not significant. Further, the impacts are so minor as not to warrant the preparation of a regulatory evaluation. The effect of the amendment is to relieve a minor restriction under which a manufacturer in certain circumstances would have to provide an additional or modified side marker lamp.

The program official and attorney responsible for developing this amendment are John Simeroth and Taylor Vinson respectively.

Issued on June 26, 1980.

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Joan Claybrook  
Administrator

**45 FR 45287**  
**July 3, 1980**

**PREAMBLE TO AN AMENDMENT TO  
FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 108**

**Lamps, Reflective Devices, and Associated Equipment  
(Docket No. 69-19; Notice 19)**

**ACTION:** Final rule.

**SUMMARY:** This notice amends Motor Vehicle Safety Standard No. 108 by supplementing an amendment published on January 5, 1976 (49 FR 765) which adopted SAE Standard J588e, Turn Signal Lamps, September 1970 as the referenced standard for that item of lighting equipment. The effect of the amendment was to increase the minimum effective projected luminous area of all turn signal lamps but a corresponding change was not made in the maximum allowable candlepower for single and triple compartment yellow rear turn signal lamps in Figure 1. This notice effects that change.

**EFFECTIVE DATE:** Since the amendment imposes no new substantive requirements it is effective upon publication in the *Federal Register*, July 29, 1980.

**FOR FURTHER INFORMATION CONTACT:**

John Simeroth, Crash Avoidance Division,  
Office of Vehicle Safety Standards, National  
Highway Traffic Safety Administration,  
400 Seventh Street, S.W., Washington, D.C.  
20590 (202-426-2720)

**SUPPLEMENTARY INFORMATION:** Standard No. 108 was amended in January 1976 to incorporate SAE J588e as the referenced standard on turn signal lamps. Table 1 of J588e establishes maximum candlepower restrictions for rear lamps, different than those in effect under J588d, its predecessor with respect to single and triple compartment yellow turn signal lamps. When J588e was adopted, a corresponding change was not

made to Figure 1 of Standard No. 108 which sets out the photometric minimum candlepower requirements calculated using the "Group" or zonal method. This amendment to Figure 1 corrects that error.

In consideration of the foregoing, Figure 1 of 49 CFR 571.108, Motor Vehicle Safety Standard is amended to read:

**GROUP TOTALS, CP**

Groups **	Tail lamps	Red stop and turn signal lamps	Yellow turn signal lamps
	***	***	one * three
Maximum rear lamps only	***	***	750 * 1050

The program official and lawyer primarily responsible for the development of this amendment are John Simeroth and Taylor Vinson, respectively.

Issued on July 21, 1980.

Joan Claybrook  
Administrator

45 FR 49941  
July 28, 1980





## MOTOR VEHICLE SAFETY STANDARD NO. 108

### Lamps, Reflective Devices, and Associated Equipment—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, Trailers, and Motorcycles

(Docket No. 69-18)

**S1. Purpose and scope.** This standard specifies requirements for original and replacement lamps, reflective devices, and associated equipment necessary for signaling and for the safe operation of motor vehicles during darkness and other conditions of reduced visibility.

**S2. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, buses, trailers (except pole trailers and trailer converter dollies), and motorcycles, and to lamps, reflective devices, and associated equipment for replacement of like equipment on vehicles to which this standard applies.

**S3. Definitions.** "Flash" means a cycle of activation and deactivation of a lamp by automatic means continuing until stopped either automatically or manually.

"Type 1" means a headlamp, with only an upper beam filament, whose identification code begins with the numeral "1".

"Type 2" means a headlamp, with both upper and lower beam filaments, whose identification code begins with the numeral "2".

#### **S4. Requirements.**

##### **S4.1 Required motor vehicle lighting equipment.**

**S4.1.1** Except as provided in succeeding paragraphs of S4.1.1, each vehicle shall be equipped with at least the number of lamps, reflective devices, and associated equipment specified in Tables I and III, as applicable. Required equipment shall be designed to conform to the SAE Standards or Recommended Practices referenced in those tables. Table I applies to multipurpose

passenger vehicles, trucks, trailers, and buses, 80 or more inches in overall width. Table III applies to passenger cars and motorcycles and to multipurpose passenger vehicles, trucks, trailers, and buses less than 80 inches in overall width.

**S4.1.1.1** A truck tractor need not be equipped with turn signal lamps mounted on the rear if the turn signal lamps at or near the front are so constructed (double-faced) and so located that they meet the requirements for double-faced turn signals specified in SAE Standard J588e, "Turn Signal Lamps," September 1970.

**S4.1.1.2** A truck tractor need not be equipped with any rear side marker devices, rear clearance lamps, and rear identification lamps.

**S4.1.1.3** Intermediate side marker devices are not required on vehicles less than 30 feet in overall length.

**S4.1.1.4** Reflective material conforming to Federal Specification L-S-300, "Sheeting and Tape, Reflective; Nonexposed Lens, Adhesive Backing," September 7, 1965, may be used for side reflex reflectors if this material, as used on the vehicle, meets the performance standards in Table I of SAE Standard J594e, Reflex Reflectors, March 1970.

**S4.1.1.5** The turn signal operating unit on each passenger car and multipurpose passenger vehicle, truck, and bus less than 80 inches in overall width manufactured on or after January 1, 1973, shall be self-cancelling by steering wheel rotation and capable of cancellation by a manually operated control.

**S4.1.1.6** Each stop lamp on any motor vehicle manufactured between January 1, 1973, and September 1, 1978, may be designed to conform to SAE Standard J586b, *Stop Lamps*, June 1966. It shall meet the photometric minimum candlepower requirements for Class A red turn signal lamps specified in SAE Standard J575d, *Tests for Motor Vehicle Lighting Devices and Components*, August 1967. Each such lamp on a passenger car and on a multipurpose passenger vehicle, truck, trailer or bus less than 80 inches in overall width shall have an effective projected luminous area not less than  $3\frac{1}{2}$  square inches. If multiple compartment lamps or multiple lamps are used, the effective projected luminous area of each compartment or lamp shall be not less than  $3\frac{1}{2}$  square inches; however, the photometric requirements may be met by a combination of compartments or lamps.

**S4.1.1.7** Each turn signal lamp on any motor vehicle except motorcycles, manufactured between January 1, 1972, and September 1, 1978, may be designed to conform to SAE Standard J588d, *Turn Signal Lamps*, June 1966, and shall meet the photometric minimum candlepower requirements for Class A turn signal lamps specified in SAE Standard J575d, *Tests for Motor Vehicle Lighting Devices and Components*, August 1967. Each such lamp on a passenger car and on a multipurpose passenger vehicle, truck, trailer or bus less than 80 inches in overall width shall have an effective projected luminous area not less than  $3\frac{1}{2}$  square inches. If multiple compartment lamps or multiple lamps are used, the effective projected luminous area of each compartment or lamp shall be not less than  $3\frac{1}{2}$  square inches; however, the photometric requirements may be met by a combination of compartments or lamps. Each such lamp on a multipurpose passenger vehicle, truck, trailer or bus 80 inches or more in overall width shall have an effective projected luminous area not less than 12 square inches.

**[S4.1.1.8]** For each motor vehicle less than 30 feet in overall length, the photometric-minimum candlepower requirements for side marker lamps specified in SAE Standard J592e, "Clearance,

Side Marker, and Identification Lamps," July 1972, may be met for all inboard test points at a distance of 15 feet from the vehicle and on a vertical plane that is perpendicular to the longitudinal axis of the vehicle and located midway between the front and rear side marker lamps. (45 F.R. 45287—July 3, 1980. Effective: 7/3/80)]

**S4.1.1.9** Boat trailers need not be equipped with both front and rear clearance lamps, provided an amber (to front) and red (to rear) clearance lamp is located at or near the midpoint on each side of the trailer so as to indicate its extreme width.

**S4.1.1.10** Multiple license plate lamps and backup lamps may be used to fulfill the requirements of the SAE Standards applicable to such lamps referenced in Tables I and III.

**S4.1.1.11** A parking lamp is not required to meet the minimum photometric values at each test point specified in Table I of SAE Standard J222, "Parking Lamps (Position Lamps)," if the sum of the candlepower measured at the test points within the groups listed in Figure 1 is not less than the sum of the candlepower values for such test points specified in J222.

**S4.1.1.12** A taillamp, stop lamp, or turn signal lamp is not required to meet the minimum photometric values at each test point specified in the referenced SAE Standards, if the sum of the candlepower measured at the test points is not less than that specified for each group listed in Figure 1, or for motorcycle turn signal lamps, not less than one-half of such sum.

**S4.1.1.13** (Deleted)

**S4.1.1.14** (Deleted)

**S4.1.1.15** (Deleted)

**S4.1.1.16** All passenger cars and multipurpose passenger vehicles, trucks, and buses of less than 80 inches overall width shall be equipped with turn signal operating units designed to complete a durability test of 100,000 cycles.

**S4.1.1.17** A trailer that is less than 30 inches in overall width may be equipped with only one of each of the following lamps and reflective

devices, located at or near its vertical centerline; Tail lamp, stop lamp, and rear reflex reflector.

**S4.1.1.18** A trailer that is less than 6 feet in overall length, including the trailer tongue, need not be equipped with front side marker lamps and front side reflex reflectors.

**S4.1.1.19** A lamp manufactured on or after January 1, 1974, and designed to use a type of bulb that has not been assigned a mean spherical candlepower rating by its manufacturer and is not listed in SAE Standard J573d, "Lamp Bulbs and Sealed Units," December 1968, shall meet the applicable requirements of this standard when used with any bulb of the type specified by the lamp manufacturer, operated at the bulb's design

voltage. A lamp that contains a sealed-in bulb shall meet these requirements with the bulb operated at the bulb's design voltage.

**S4.1.1.20** Except for a lamp having a sealed in bulb, a lamp manufactured on or after January 1, 1974 shall meet the applicable requirements of this standard when tested with a bulb whose filament is positioned within  $\pm .010$  inch of the nominal design position specified in SAE Standard J573d, "Lamp Bulbs and Sealed Units," December 1968, or specified by the bulb manufacturer.

**S4.1.1.21** The lens of each headlamp designed to conform to SAE Standard J579c, *Sealed Beam Headlamp Units for Motor Ve-*

Groups	Test Points Deg	Parking Lamps	Group Totals, CP								
			Tail Lamps			Red Stop and Turn Signal Lamps			Yellow Turn Signal Lamps		
			One	Two	Three	One	Two	Three	One	Two	Three
1	20L-5U										
	20L-H										
	20L-5D	2.8	1.6	2.7	3.8	55	66	80	135	165	190
	10L-10U										
	10L-10D										
2	10U-V										
	5U-10L	2.4	2.1	3.6	5.5	85	100	115	210	251	290
	5U-10R										
3	10L-H										
	5L-5U	4.2	3.4	5.3	8.0	140	167	195	350	420	490
	5L-5D										
4	5U-V										
	H-5L										
	H-V	16.8	9.6	16.5	24.0	380	449	520	950	1,130	1,295
	H-5R										
	51U-V										
5	5R-5U										
	5R-5D	4.2	3.4	5.3	8.0	140	167	195	350	420	490
	10R-H										
6	5D-10L										
	5D-10R	2.4	2.1	3.6	5.5	85	100	115	210	251	290
	10D-V										
7	10R-10U										
	10R-10D										
	20R-5U	2.8	1.6	2.7	3.8	55	66	80	135	165	190
	20R-H										
	20R-5D										
Maximum-Rear Lamps Only		18	20	25	300	360	420	750	900	1,050	

FIGURE 1.—Grouped photometric minimum candlepower requirements for devices using one, two, or three separately lighted compartments, or for one, two, or three lamps used in a single design location to perform a single function.

hicles, December 1974, manufactured on or after July 1, 1979, shall be marked with the symbol

“D  
“DOT” or O  
T”

which shall constitute a certification that the headlamp conforms to applicable Federal motor vehicle safety standards, and with one of the following designations as appropriate:

(a) A lens for rectangular headlamp (100 × 165 mm) incorporating an upper beam only shall be labeled 1A1.

(b) A lens for a rectangular headlamp (100 × 165 mm) incorporating both an upper beam and a lower beam shall be labeled 2A1.

(c) A lens for a rectangular headlamp (142 × 200 mm) incorporating both an upper beam and a lower beam, shall be labeled 2B1.

(d) A lens for a circular headlamp (146-mm diameter) incorporating an upper beam only shall be labeled 1C1.

(e) A lens for a circular headlamp (146-mm diameter) incorporating both an upper and a lower beam shall be labeled 2C1.

(f) A lens for a circular headlamp (178-mm diameter) incorporating both an upper beam and a lower beam shall be labeled 2D1.

The lens of each headlamp designed to conform to SAE Standard J579c and manufactured before July 1, 1979, may be labeled as specified above.

**S4.1.1.22** A backup lamp is not required to meet the minimum photometric values at each test point specified in Table I of SAE Standard J593c “Backup Lamps” if the sum of the candlepower measured at the test points within each group listed in Figure 2 is not less than the group totals specified in that figure.

**S4.1.1.23** Variable load turn signal flashers shall comply with voltage drop and durability requirements with the maximum design load connected and shall comply with starting time, flash rate, and percent current “on” time requirements both with the minimum and with the maximum design load connected.

		Total for Group, ed (see notes a, b)
Group	Test point, deg	
1 <sup>a</sup>	45L-5U .....	45
	45L-H .....	
	45L-5D .....	
2 <sup>a</sup>	30L-H .....	50
	30L-5-D .....	
	10L-10U .....	
3	10L-5U .....	100
	V-10U .....	
	V-5U .....	
	10R-10U .....	
	10R-5U .....	
4	10L-H .....	360
	10L-5D .....	
	V-H .....	
	V-5D .....	
	10R-H .....	
5 <sup>a</sup>	10R-5D .....	50
	30R-H .....	
	30R-5D .....	
6 <sup>a</sup>	45R-5U .....	45
	45R-H .....	
	45R-5D .....	

<sup>a</sup> When two lamps of the same or symmetrically opposite design are used, the reading along the vertical axis and the averages of the readings for the same angles left and right of vertical for one lamp shall be used to determine compliance with the requirements. If two lamps of differing designs are used, they shall be tested individually and the values added to determine that the combined units meet twice the candela requirements.

<sup>b</sup> When only one backup lamp is used on the vehicle, it shall be tested to twice the candela requirements.

FIGURE 2—Minimum Luminous Intensity Requirements for Backup Lamps

**S4.1.1.24** The lowest voltage drop for turn signal flashers and hazard warning signal flashers measured between the input and load terminals shall not exceed 0.8 volt.

**S4.1.1.25** Reserved.

**S4.1.1.26** A motor-driven cycle whose speed attainable in 1 mile is 30 mph or less need not be equipped with turn signal lamps.

**S4.1.1.27** A motor-driven cycle whose speed attainable in 1 mile is 30 mph or less may be equipped with a stop lamp whose photometric output for the groups of test points specified in

Figure 1 is at least one-half of the minimum values set forth in that figure.

**S4.1.1.28** Each tail lamp on any motor vehicle manufactured before September 1, 1978, may be designed to conform to SAE Standard J585d, *Tail Lamps*, July 1, 1980.

**S4.1.1.29** Each turn signal lamp on a motorcycle manufactured between January 1, 1973, and September 1, 1978, may be designed to conform to SAE Standard J588d, *Turn Signal Lamps*, June 1966.

**S4.1.1.30** Except as provided in paragraph S4.1.1.12 of this standard, each turn signal lamp on a motorcycle shall meet one-half of the minimum photometric values at each test point specified for Class A turn signal lamps in SAE Standard J575d, *Tests for Motor Vehicle Lighting Devices and Components*, August 1967, or in SAE Standard J588e, *Turn Signal Lamps*, September 1970, as applicable.

**S4.1.1.31** Each turn signal lamp on a motorcycle manufactured on and after January 1, 1973, shall have an effective projected luminous area not less than 3½ square inches.

**S4.1.1.32** Note 6 of Table 1 in SAE Standard J588e, *Turn Signal Lamps*, September 1970, does not apply. A stop lamp that is not optically combined with a turn signal lamp shall remain activated when the turn signal is flashing.

**S4.1.1.33** At a voltage of 12.8 volts, the maximum design wattage for upper and lower beams on headlamps designed to conform to SAE Standard J579c, *Sealed Beam Headlamp Units for Motor Vehicles*, December 1974, shall be as follows: 55 watts for upper beam on Type 1A1 and Type 1C1, 43 watts for upper beam and 65 watts for lower beam on Type 2A1 and Type 2C1, 70 watts for upper beam and 60 watts for lower beam on Type 2B1, 65 watts for upper beam and 55 watts for lower beam on type 2D1.

**S4.1.1.34** A motorcycle may be equipped with one of the following four headlighting systems:

System	Headlamp type	Number of headlamps
1	Type 1C1 or type 1 (5¾ in.) and either Type 2C1 or type 2 (5¾ in.)	1 lamp. 1 lamp.
2	Type 2D1 or type 2 (7 in.)	1 or 2 lamps.
3	Type 1A1 or type 1A and either Type 2A1 or type 2A	1 lamp. 1 or 2 lamps.
4	Type 2B1 or type 2B	1 or 2 lamps.

**S4.1.1.35** Each headlamp on a passenger car, multipurpose passenger vehicle, truck, or bus manufactured on or before September 30, 1979, may be designed to conform with SAE Standard J580a, *Sealed Beam Headlamp*, June 1966.

**S4.1.2** Plastic materials used for optical parts such as lenses and reflectors shall conform to SAE Recommended Practice J576c, May 1970, except that:

(a) Plastic materials manufactured before January 1, 1976, may conform to SAE J576b, August 1966;

(b) Plastic lenses used for inner lenses or those covered by another material and not exposed directly to sunlight shall meet the requirements of paragraphs 3.4 and 4.2 of SAE J576b, or J576c, as applicable, when covered by the outer lens or other material;

(c) After the outdoor exposure test, the haze and loss of surface luster of plastic materials used for lamp lenses shall not be greater than 30 percent haze as measured by ASTM-1003-61, "Haze and Luminous Transmittance of Transparent Plastics"; and

(d) After the outdoor exposure test, plastic materials used for reflex reflectors shall meet the appearance requirements of paragraph 4.2.2 of SAE J576b or J576c as applicable.

**S4.1.3** No additional lamp, reflective device, or other motor vehicle equipment shall be installed that impairs the effectiveness of lighting equipment required by this standard.

**S4.1.4** Each school bus shall be equipped with a system of either:

(a) Four red signal lamps designed to conform to SAE Standard J887, "School Bus Red Signal Lamps," July 1964, and installed in accordance with that standard; or

(b) Four red signal lamps designed to conform to SAE Standard J887, "School Bus Red Signal Lamps," July 1964, and four amber signal lamps designed to conform to that standard, except for their color, and except that their candlepower shall be at least 2½ times that specified for red signal lamps. Both red and amber lamps shall be installed in accordance with SAE Standard J887, except that:

(i) Each amber signal lamp shall be located near each red signal lamp, at the same level, but closer to the vertical centerline of the bus; and

(ii) The system shall be wired so that the amber signal lamps are activated only by manual or foot operation, and if activated, are automatically deactivated and the red signal lamps automatically activated when the bus entrance door is opened.

**S4.1.5** The color in all lighting equipment covered by this standard shall comply with SAE Standard J578c, February 1977, "Color Specification for Electric Signal Lighting Devices," except for the color in lighting equipment manufactured on or before December 31, 1978, may comply with SAE Standard J578a, April 1965.

#### **S4.2 Other requirements.**

**S4.2.1** The words "it is recommended that," "recommendations," or "should be" appearing in any SAE Standard or Recommended Practice referenced or subreferenced in this standard shall be read as setting forth mandatory requirements, except that the aiming pads on the lens face and the black area surrounding the signal lamp, recommended in SAE Standard J887, "School Bus Red Signal Lamps," July 1964, are not required.

**S4.2.2** The words "Type 1 (5¾")," "Type 2 (5¾")," "Type 2 (7")," "Type 1A," "Type 2A," and "Type 2B" appearing in any SAE Standard or Recommended Practice referenced or subreferenced in this standard shall also be read as setting forth requirements respectively for the following types of headlamps: 1C1, 2C1, 2D1, 1A1, 2A1, and 2B1.

#### **S4.3. Location of required equipment.**

**S4.3.1** Except as provided in succeeding paragraphs of S4.3.1, each lamp, reflective device, and item of associated equipment shall be securely mounted on a rigid part of the vehicle other than glazing that is not designed to be removed except for repair, in accordance with the requirements of Table I or III and in locations specified in Table II (multipurpose passenger vehicles, trucks, trailers, and buses 80 or more inches in overall width) and Table IV (all passenger cars, and motorcycles, and multipurpose passenger vehicles, trucks, trailers, and buses less than 80 inches in overall width), as applicable.

**S4.3.1.1** Except as provided in S4.3.1.1.1, each lamp and reflective device shall be located so that it meets the visibility requirements specified in any applicable SAE Standard or Recommended Practice. In addition, no part of the vehicle shall prevent a parking lamp, taillamp, stop lamp, turn signal lamp, or backup lamp from meeting its photometric output at any applicable group of test points specified in Figures 1 and 3, or prevent any other lamp from meeting the photometric output at any test point specified in any applicable SAE Standard or Recommended Practice. However, if motor vehicle equipment (e.g., mirrors, snow plows, wrecker booms, backhoes, and winches) prevents compliance with this paragraph by any required lamp or reflective device, an auxiliary lamp or device meeting the requirements of this paragraph shall be provided.

**S4.3.1.1.1** Clearance lamps may be mounted at a location other than on the front and rear if necessary to indicate the overall width of a vehicle, or for protection from damage during normal operation of the vehicle, and at such a location they need not be visible at 45 degrees inboard.

**S4.3.1.2** On a truck tractor, the red rear reflex reflectors may be mounted on the back of the cab, at a minimum height not less than 4 inches above the height of the rear tires.

**S4.3.1.3** On a trailer, the amber front side reflex reflectors and amber front side marker lamps may be located as far forward as practicable exclusive of the trailer tongue.

**S4.3.1.4** When the rear identification lamps are mounted at the extreme height of a vehicle, rear clearance lamps need not meet the requirement of Table II that they be located as close as practicable to the top of the vehicle.

**S4.3.1.5** The center of the lens referred to in SAE Standard J593c, "Backup Lamps," February 1968, is the optical center.

**S4.3.1.6** On a truck tractor, clearance lamps mounted on the cab may be located to indicate the width of the cab, rather than the overall width of the vehicle.

**S4.3.1.7** The requirement that there be not less than 4 inches between a front turn signal lamp and a low-beam headlamp, specified in SAE Standard J588e, "Turn Signal Lamps," September 1970, shall not apply if the sum of the candlepower values of the turn signal lamp measured at the test points within each group listed in Figure 1 is not less than two and one-half times the sum specified for each group for yellow turn signal lamps.

#### **S4.4. Equipment combinations.**

**S4.4.1** Two or more lamps, reflective devices, or items of associated equipment may be combined if the requirements for each lamp, reflective device, and item of associated equipment are met, except that no clearance lamp may be combined optically with any taillamp or identification lamp.

#### **S4.5. Special wiring requirements.**

**S4.5.1** Each vehicle shall have a means of switching between lower and upper headlamp beams that conforms to SAE Recommended Practice J564a, "Headlamp Beam Switching," April 1964, or to SAE Recommended Practice J565b, "Semi-Automatic Headlamp Beam Switching Devices," February 1969.

**S4.5.2** Each vehicle shall have a means for indicating to the driver when the upper beams of the headlamps are on that conforms to SAE Recommended Practice J564a, April 1964, except that the signal color need not be red.

**S4.5.3** The taillamps on each vehicle shall be activated when the headlamps are activated in a steady-burning state.

**S4.5.4** The stop lamps on each vehicle shall be activated upon application of the service brakes.

**S4.5.5** The vehicular hazard warning signal operating unit on each vehicle shall operate independently of the ignition or equivalent switch, and when activated, shall cause to flash simultaneously sufficient turn signal lamps to meet, as a minimum, the turn signal lamp photometric requirements of this standard.

**S4.5.6** Each vehicle equipped with a turn signal operating unit shall also have an illuminated pilot indicator. Failure of one or more turn signal lamps to operate shall be indicated in accordance with SAE Standard J588e, "Turn Signal Lamps," September 1970, except where a variable-load turn signal flasher is used on a truck, bus, or multipurpose passenger vehicle 80 or more inches in overall width, on a truck that is capable of accommodating a slide-in camper, or on any vehicle equipped to tow trailers.

**S4.5.7** On all passenger cars, and motorcycles, and multipurpose passenger vehicles, trucks, and buses of less than 80 inches overall width;

(a) When the parking lamps are activated, the taillamps, license plate lamps, and side marker lamps shall also be activated; and

(b) When the headlamps are activated in a steady-burning state, the taillamps, parking

lamps, license plate lamps and side marker lamps shall also be activated.

**S4.6 When activated:**

(a) Turn signal lamps, hazard warning signal lamps, and school bus warning lamps shall flash; and

(b) All other lamps shall be steady-burning, except that means may be provided to flash headlamps and side marker lamps for signaling purposes.

**S4.7 Replacement Equipment**

**S4.7.1** Each lamp, reflective device, or item of associated equipment manufactured to replace any lamp, reflective device, or item of associated equipment on any vehicle to which this standard applies, shall be designed to conform with this standard.

**S4.7.2** Each lamp, reflective device, or item of associated equipment to which section S4.7.1 applies may be labeled with the symbol DOT, which shall constitute a certification that it conforms to applicable Federal motor vehicle safety standards.

**S5. Subreferenced SAE Standards and Recommended Practices.**

**S5.1** SAE Standards and Recommended Practices subreferenced by the SAE Standards and Recommended Practices included in Tables I and III and paragraphs S4.1.4 and S4.5.1 are those published in the 1970 edition of the SAE Handbook, except that the SAE Standard referred to as "J599" is J599c, *Lighting Inspection Code*, March 1973, and the subreferenced SAE Standard referred to as "J575" is J575e, *Tests for Motor Vehicle Lighting Devices and Components*, August 1970, for taillamps, stop lamps, and turn signal lamps designed to conform to SAE Standard J585d, J585e, J586c, and J588e, respectively. The reference in J585e to J256 does not apply. The subreferenced Standards and Recommended Practices for headlamps designed to conform to SAE Standard J579b, *Sealed Beam*

*Headlamp Units*, December 1974, are those published in the 1977 edition of the SAE Handbook.

**S5.2** Requirements of SAE Standards incorporated by reference in this standard, other than J576b and J576c, do not include tests for warpage of devices with plastic lenses.

**Interpretation**

(1) The term "overall width" refers to the nominal design dimension of the widest part of the vehicle, exclusive of signal lamps, marker lamps, outside rearview mirrors, flexible fender extensions, and mud flaps, determined with doors and windows closed, and the wheels in the straight-ahead position.

(2) Paragraph S3.1 and Tables I and III of § 571.108 as amended (32 F.R. 18033, Dec. 16, 1967), specify that certain lamp assemblies shall conform to applicable SAE Standards. Each of these basically referenced standards subreferences both SAE Standard J575 (tests for motor vehicle lighting devices and components) which in turn references SAE Standard J573 on bulbs, and SAE Standard J567 on bulb sockets.

(3) Paragraph C of SAE Standard J575 states in part: "Where special bulbs are specified, they should be submitted with the devices and the same or similar bulbs used in the tests and operated at their rated mean spherical candlepower." The Administrator has determined that this provision of SAE Standard J575 permits the use of special bulbs, including tubular-type bulbs, which do not conform to the detailed requirements of Table I of SAE Standard J573. It follows that the sockets for special bulbs need not conform to the detailed requirements of SAE Standard J567. These provisions for special bulbs in no way except the lamp assemblies from meeting all performance requirements specified in Federal Standard No. 108, including those specified in the basically referenced SAE Standards, and in the subreferenced SAE Standard J575.

**35 F.R. 16842  
October 31, 1970**



# PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

### (Docket No. 18)

A proposal to amend § 371.21 of Part 371, Initial Federal Motor Vehicle Safety Standards, by adding Standard No. 109, New Pneumatic Tires—Passenger Cars; and Standard No. 110, Tire Selection and Rims—Passenger Cars; was published in the *Federal Register* on July 22, 1967 (32 F.R. 10812).

Interested persons have been afforded an opportunity to participate in the making of the amendment.

Compliance with the labeling requirements of Standard No. 109, established in accordance with section 201 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1421), and the tread wear indicator requirements found in the standard may necessitate the modification of tire molds. Several tire manufacturers requested that additional time be allowed to modify these tire molds. After evaluation of all data received, it was determined that an effective date of August 1, 1968, for paragraphs S4.2.1 and S4.3 would provide a reasonable amount of time to accomplish the necessary mold modifications.

Many comments stated that no practical way is known to permanently affix a label onto the tire sidewall, as would have been required by proposed paragraph S4.3.1 until such time as a label is molded into or onto the tire. Accordingly, S4.3.1 of Standard No. 109 has been modified to permit, until August 1, 1968, the use of a label or tag containing the required labeling information not permanently molded into or onto the tire.

Many comments objected to the limitations imposed by the maximum tire section width dimensions specified in the tables of the notice. The Administrator has determined that additional dimensional latitude is necessary, and therefore Standard No. 109 specifies that to pro-

vide for tire growth, protective side ribs, ornamentation, manufacturing tolerances, and design differences for each tire size designation, actual tire section width and overall tire width may exceed the section width specified in Table I of the Standard by 7 percent.

In response to requests, additional tire size designations and load/inflation schedules were added when necessary information was available. In addition, Table I of Standard No. 109 and Table II of Standard No. 110 have been combined to collate related information.

Persons desiring an amendment to Standard No. 109 adding tires not presently listed, should submit sufficient pertinent information relative to these tires in 10 copies to the Secretary of Transportation; Attention: Motor Vehicle Safety Performance Service, National Highway Safety Bureau, Federal Highway Administration, U.S. Department of Transportation, Washington, D.C. 20591.

Data received have shown that the rim references indicated in the proposed Standards were inadequate in coverage. Therefore, a more comprehensive list of foreign and domestic trade association publications containing appropriate rim standards or practices has been referenced in the Standards.

Data received demonstrated that the bead unseating and tire strength requirements were inappropriate for certain groups of small tires. Accordingly, tires were regrouped and the test values revised to provide requirements for these small tires that are proportional to the requirements for other sizes of tires.

Although Standard No. 109 applies to tires for use on passenger cars manufactured after 1948, some of the tires covered by the Standard may also be used on earlier model vehicles.

The testing procedures set forth in the Standard, size designations, and related data are based upon existing standards or practices using information furnished by such organizations as the Society of Automotive Engineers, Federal Trade Commission, Tire and Rim Association, European Tire and Rim Technical Organization, Japanese Standards Association, Japan Automobile Tire Manufacturers Association, Rubber Manufacturers Association, Tyre Manufacturers Conference, Ltd., and the Society of Motor Manufacturers and Traders, Ltd.

To permit production of sufficient quantities of tires complying with the requirements of Standard No. 109 after its effective date of January 1, 1968, Standard No. 110 applies to passenger cars manufactured on or after April 1, 1968.

A single table of load/pressure values for radial ply tires was included in the notice and this was supported by many comments. Other comments stressed the importance of including different load/pressure values for optimum tire deflections. Although a single table of load/pressure schedules combining these values for these radial ply tires would be desirable, it was not considered advisable to include such a table in the standard promulgated under the present notice.

In accordance with section 201 of the Act, S4.3 of Standard No. 109 requires that each tire be labeled with the name of the manufacturer or his brand name and an approved code mark to permit the tire seller to identify the tire manufacturer upon the purchaser's request. Any tire manufacturer desiring an approved code mark should apply for his code number assignment to the Secretary of Transportation; Attention:

Motor Vehicle Safety Performance Service, National Highway Safety Bureau, Federal Highway Administration, U.S. Department of Transportation, Washington, D.C. 20591.

Several comments, including the suggested use of a "load range" system, will be considered for future rulemaking. (See 32 F.R. 14279).

Since it was clearly the intent of the Congress that, to enhance the safety of the general public, Federal Motor Vehicle Safety Standards for tires become effective as soon as practicable, and since no adverse comments were received pertinent to the proposed effective date presented in the advance notice of proposed rulemaking (32 F.R. 2417), at a Government-industry technical meeting, and in the notice of proposed rulemaking (32 F.R. 10812), and no undue burden was demonstrated, good cause is shown that an effective date earlier than 180 days after issuance is in the public interest.

In consideration of the foregoing, § 371.21 of Part 371, Initial Federal Motor Vehicle Safety Standards, is amended . . . Standard No. 109 becomes effective January 1, 1968, and Standard No. 110 becomes effective April 1, 1968.

(Secs 103, 119, National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407); delegation of authority of Mar. 31, 1967 (32 F.R. 5606), as amended Apr. 6, 1967 (32 F.R. 6495), July 27, 1967 (32 F.R. 11276), Oct. 11, 1967 (32 F.R. 14277), Nov. 8, 1967).

Issued in Washington, D.C., on November 8, 1967.

Lowell K. Bridwell,  
Federal Highway Administrator.

**32 F.R. 15792**  
**November 16, 1967**

# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **New Pneumatic Tires—Passenger Cars**

### **(Docket No. 18)**

Motor Vehicle Safety Standard No. 109 (32 F.R. 15792) specifies tire dimensions and laboratory test requirements for bead unseating resistance, strength, endurance, and high speed performance; defines tire load ratings; and specifies labeling requirements for new pneumatic tires for use on passenger cars manufactured after 1948.

Certain labeling requirements are set forth in S4.3, including, in paragraph (i), a requirement for an approved recital (or the symbol specified in Figure 1) that the tire conforms to applicable Federal Motor Vehicle Safety Standards. Figure 1 contains lettering detail dimensions for that symbol.

The Federal Highway Administration has determined that it is not necessary to specify the width and stroke of individual letters nor the space between letters if the overall length and height is specified, and that more latitude is needed in the depth and overall length requirements for this symbol. Therefore, Standard No. 109 is being amended by striking out the unneeded dimensions and by providing increased latitude for the letter depth and the overall length requirements.

Since this amendment provides an alternative means of compliance, relieves a restriction, and

imposes no additional burden on any person, notice and public procedure hereon are unnecessary and good cause is shown that an effective date earlier than 180 days after issuance is in the public interest and the amendment may be made effective less than 30 days after publication in the *Federal Register*.

In consideration of the foregoing, § 371.21 of Part 371, Initial Federal Motor Vehicle Safety Standards, Standard No. 109 is amended by deleting Figure 1 (32 F.R. 15794) and in its place inserting the following Figure 1.

(Secs. 103, 119, National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407); delegation of authority of Mar. 31, 1967 (32 F.R. 6506), as amended Apr. 6, 1967 (32 F.R. 6495), July 27, 1967 (32 F.R. 11276), Oct. 11, 1967 (32 F.R. 14277), and Nov. 8, 1967 (32 F.R. 15710))

This amendment becomes effective January 1, 1968.

Issued in Washington, D.C., on December 11, 1967.

Lowell K. Bridwell,  
Federal Highway Administrator.

**33 F.R. 17938**

**December 15, 1967**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

### (Docket No. 18R)

Motor Vehicle Safety Standard No. 109 (32 F.R. 15792), as amended (32 F.R. 17938), specifies tire dimensions and laboratory test requirements for bead unseating resistance, strength, endurance, and high speed performance; defines tire load ratings; and specifies labeling requirements for new pneumatic tires for use on passenger cars manufactured after 1948. Motor Vehicle Safety Standard No. 110 (32 F.R. 15798) specifies tire selection and rims requirements to prevent tire overloading.

Figures 2 and 3 of Standard No. 109 are drawings of the bead unseating test fixture used in performing the test specified in S5.2.

Section S5.4.2.3 specifies the 50 miles-per-hour test schedule for the tire endurance test.

Tables I-A through I-H list the various tire types and sizes with proper load and inflation values.

After review of Petitions for Reconsideration received under Docket No. 18R, the Administrator has determined that certain parts of Standard No. 109 require clarification, the tire tables need revision to include a number of new sizes and there is need for a table listing a new series of tires.

In addition, Standard No. 110 requires an additional table to list alternative rims for tire and rim combinations not presently covered by the standard.

Therefore, Standard No. 109 is being amended by—

(a) Revising Figures 2 and 3, which depict the bead unseating test fixture, by adding one additional dimension to Figure 2 and a centerline and tangent line to Figure 3;

(b) Specifying that the test required by S5.4.2.3 be conducted without pressure adjustment or other interruption;

(c) In table I-A through I-H

(1) Adding additional tire size designations;

(2) Adding footnotes permitting the use of the letter "H", "S", or "V";

(3) Correcting typographical errors;

(d) Adding Table I-J which lists a new series of low section height tires.

In addition, Standard No. 110 is being amended by—

(a) Revising paragraph S4.4.1 to include alternative rims, not presently listed in the references cited in the definition of Test Rim in S3 of Standard No. 109; and

(b) Adding a new table of approved alternative rims.

Since these amendments provide clarification and alternative means of compliance, relieve restrictions, and impose no additional burden on any person, notice and public procedure hereon are unnecessary. The Administrator finds, for good cause shown, that no preparatory period is needed to effect compliance and it is therefore in the public interest to make the amendments effective immediately.

In consideration of the foregoing, § 371.21 of Part 371, Federal Motor Vehicle Safety Standards, Standard No. 109 (32 F.R. 15792), as amended (32 F.R. 17938), and Standard No. 110 (32 F.R. 15798), are amended, effective April 11, 1968 . . . .

(Secs. 103, 119, National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407); delegation of authority of March 31, 1967 (32 F.R. 5606), as amended Nov. 8, 1967 (32 F.R. 15710)).

Issued in Washington, D.C., on April 11, 1968.

Lowell K. Bridwell,

Federal Highway Administrator.

33 F.R. 5944

April 18, 1968



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

On September 11, 1968, the Federal Highway Administration published in the *Federal Register* amendments to Standard Nos. 109 and 110 (33 F.R. 12842). Omitted from publication as part of Appendix A of Standard No. 109 were Tables 1-A through 1-J. For the convenience of persons using the tables the preamble to the amendments published September 11, 1968, and the text of the amendments, as corrected by the addition of the omitted tables are published below. Additionally, Appendix A of Standard No. 110 has been changed to specify the information that should be submitted with requests for the addition of alternative rim sizes.

Federal Motor Vehicle Safety Standard No. 109 (32 F.R. 15792), as amended (32 F.R. 17938 and 33 F.R. 5944), specifies tire dimensions and laboratory test requirements for bead unseating resistance, strength, endurance and high speed performance; defines tire load ratings; and specifies labeling requirements for new pneumatic tires for use on passenger cars manufactured after 1948. Motor Vehicle Safety Standard No. 110 (32 F.R. 15798) as amended (33 F.R. 5949) specifies tire selection and rim requirements to prevent tire overloading.

Tables 1-A through 1-J of Standard No. 109 list various tire types and sizes with proper load and inflation values.

Standard No. 109 is being amended to designate Tables 1-A through 1-J as Appendix A of Standard No. 109.

In addition, Table 1-H is being amended by adding additional tire size designations.

Table I of Standard No. 110 is a list of alternative rims for tire and rim combinations that are not contained in any reference in § 3 of Standard No. 109.

Standard No. 110 is being amended to designate Table I as Appendix A of Standard No. 110.

In addition, the table is being amended by adding, as alternative rims for tire size 8.55x15, rim sizes 5½-JK, 5½-JJ, 5½-J; F70-14, rim size 7JJ; and G70-14, rim size 7JJ.

Additionally, guidelines by which persons requesting routine additions to Appendix A of Standard No. 109 and Appendix A of Standard No. 110, are set forth as introductory language to both appendices. The guidelines provide an abbreviated rule making procedure for adding tire sizes to Standard No. 109, whereby the addition becomes effective 30 days from date of publication in the *Federal Register* if no comments are received. If comments objecting to the amendment warrant, the Administration will provide for additional rule making pursuant to the Rule Making Procedures for Motor Vehicle Safety Standards (23 C.F.R. 216).

Since these amendments provide an alternative means of compliance, relieve restrictions, and impose no additional burdens on any person, notice and public procedure hereon are unnecessary and the Administrator finds, for good cause shown, that no preparatory period is needed to effect compliance and it is in the public interest to make the amendments effective immediately.

In consideration of the foregoing, Section 371.21 of Part 371, Federal Motor Vehicle Safety Standards, Standard No. 109 (32 F.R. 15792), as amended (32 F.R. 17938 and 33 F.R. 5944), and Standard No. 110 (32 F.R. 15798), as amended (33 F.R. 5949), are amended effective this date as set forth below.

These amendments are made under the authority of Sections 103 and 119 of the National

Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation from the Secretary of Transportation, Part I of the Regulations of the Office of the Secretary (49 C.F.R. § 1.4(c)).

Issued in Washington, D.C., on September 27, 1968.

John R. Jamieson, Deputy  
Federal Highway Administrator

**33 F.R. 14964**  
**October 5, 1968**

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**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires—Passenger Cars****(Docket No. 69-4; Notice No. 1)**

On October 5, 1968, the Federal Highway Administration published guidelines in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A of Standard No. 109 and the Appendix A of Standard No. 110. These guidelines provided an abbreviated rule-making procedure for adding tire sizes to Standard No. 109 and alternative rim sizes to Standard No. 110, whereby the addition becomes effective 30 days from date of publication in the *Federal Register* if no objections to the proposed additions are received. If comments objecting to the amendment warrant, rule making pursuant to the rule-making procedures for motor vehicle safety standards (49 CFR Part 353) will be followed.

The Rubber Manufacturers Association has petitioned for the addition of the C70-15 tire size designation to Table I-B and the F60-15 tire size designation as a new category of tire to be listed within the tables. The Firestone Tire & Rubber Company has petitioned for the addition of the E50C-16, F50C-16, and H50C-17 tire size designations as a new category of tires.

On the basis of the data submitted by the Rubber Manufacturers Association and the Firestone Tire & Rubber Company indicating compliance with the requirements of Federal Motor Vehicle Safety Standards Nos. 109 and 110 and other information submitted in accordance with the procedural guidelines set forth. Appendix A of Motor Vehicle Safety Standard No. 109 is being amended and Table I of Appendix A of Standard No. 110 is being amended.

In consideration of the foregoing, § 371.21 of Part 371 Federal Motor Vehicle Safety Standards, Appendix A of Standard No. 109 (33 F.R. 14964) and Appendix A of Standard No. 110 (33 F.R. 14969) are amended as set forth below effective 30 days from date of publication in the *Federal Register*.

These amendments are issued under the delegation of authority published October 5, 1968 (33 F.R. 14964) and sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation from the Secretary of Transportation, Part I of the Regulations of the Office of the Secretary (49 CFR 1.4(c)).

Issued on February 3, 1969.

H. M. Jacklin, Jr.  
Acting Director  
Motor Vehicle Safety  
Performance Service  
National Highway Safety Bureau

**Motor Vehicle Safety Standard No. 109**

(1) Table I-B of Appendix A is amended by inserting between the tire size designation L70-14 and D70-15 . . . new tire size C70-15 data.

(2) . . . Tables I-K and I-L are added to Appendix A listing new categories of tire size designations.

34 F.R. 1908  
February 8, 1969



# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **New Pneumatic Tires—Passenger Cars**

### **(Docket No. 69-3; Notice No. 1)**

The Rubber Manufacturers Association has submitted a petition for rulemaking requesting amendments to Table I-A and Table I-B of Appendix A of Federal Motor Vehicle Safety Standard No. 109—New Pneumatic Tires—Passenger Cars.

The petition requests the following changes:

(1) In Table I-A for tire size designation 8.25-15 the minimum size factor be changed from 37.57 inches to 35.57 inches.

(2) In Table I-B for tire size designation D70-13 the minimum size factor be changed from 32.32 inches to 32.34 inches; for tire size designation D70-14 the minimum size factor be changed from 32.87 inches to 32.81 inches; for tire size designation F70-14 the minimum size factor be changed from 34.18 inches to 34.16 inches; for tire size designation G70-14 the minimum size factor be changed from 35.14 inches to 35.18 inches; for tire size designation J70-14 the minimum size factor be changed from 36.91 inches to 36.87 inches; for tire size designation L70-14 the minimum size factor be changed from 37.59 to 37.62 and the section width be changed from 9.80 inches to 9.75 inches; for tire size designation D70-15 the minimum size factor be changed from 33.34 inches to 33.37 inches and the section width be changed from 7.75 inches to 7.70 inches; for tire size designation E70-15 the minimum size factor be changed from 34.17 inches to 34.13 inches; for tire size designation F70-15 the minimum size factor be changed from 34.91 inches to 34.89 inches; for tire size designation G70-15 the minimum size factor be changed from 35.68 inches to 35.66 inches; for tire size designation H70-15 the minimum size factor be changed from 36.68 inches to 36.64 inches; for tire size designation J70-15 the minimum size factor be changed from 37.34 inches

to 37.36 inches; and for tire size designation K70-15 the minimum size factor be changed from 37.62 inches to 37.66 inches.

RMA states in its petition that the requested changes are either (1) corrections of typographical errors in material submitted earlier by the RMA, upon which the present tables found in Appendix A of Standard No. 109 are based; or (2) slight modifications that reflect the most recently calculated data.

The request changes are being made. However, should any comments be received from interested persons objecting to, and giving reasons why the changes should not be made, the amendment will be modified as considered appropriate.

Since, to the extent they are other than corrective, these amendments make only minor technical changes at the request of the affected industry, the Administrator finds that, for good cause, notice of public procedure thereon is impracticable and unnecessary. Interested persons may submit written data, views, or arguments relating to the amendments. Comments should identify the Docket (No. 69-3) and be submitted in an original and three copies to the National Highway Safety Bureau, Rules Docket, Room 512, Federal Highway Administration, Washington, D.C. 20591. All comments submitted will be available for examination by interested persons at the docket room.

In consideration of the foregoing, section 371.21 of Part 371 (formally section 255.21 of Part 255), Tables I-A and I-B of Appendix A of Federal Motor Vehicle Safety Standard No. 109 as amended (33 F.R. 19714) is amended effective March 15, 1969 . . . (Secs. 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966; (15 U.S.C. 1392, 1407); and the delegation of authority contained in § 1.4(c) of

Effective: March 15, 1969

Part I of the Regulations of the Office of the  
Secretary (49 CFR 1.4 (c)).

Issued in Washington, D.C. on February 10,  
1969.

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John R. Jamieson, Deputy  
Federal Highway Administrator

**34 F.R. 2252**  
**February 15, 1969**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires—Passenger Cars****(Docket No. 71-6; Notice 1)**

On January 26, 1971, the National Highway Traffic Safety Administration (NHTSA) published in the *Federal Register* (36 F.R. 1196) a revision of Part 574, Tire Identification and Record Keeping (Docket No. 70-12; Notice No. 5) to become effective May 22, 1971. Part 574, as revised, provides that the DOT symbol, constituting the manufacturer's certification that the tire conforms with applicable motor vehicle safety standards, must be above, below, or to the left or right of the tire identification number. In addition, under this part the tire identification number must include, as the first grouping within the number, a two-symbol code assigned by the NHTSA that identifies the manufacturer of the tire. This notice amends Standard No. 109 of Part 571, in order to allow manufacturers, at their option, to convert to the new tire identification system before the May 22, 1971, effective date.

The requirements of Part 574 relating to the certification symbol and the manufacturer's code number will take the place of the requirements in Motor Vehicle Safety Standard No. 109, Part 571 of this chapter, that the tire manufacturers place the DOT symbol and an assigned three-digit code number (in the case of brand-name tires) on both sidewalls. Accordingly, a notice published January 26, 1971 (36 F.R. 1195), amends Standard No. 109, effective May 22, 1971, to reconcile the requirements of that standard with the requirements of the Tire Identification and Record Keeping Regulation.

The Administration has received requests that tires manufactured before May 22, 1971, the effective date of Part 574, that are marked as prescribed by that part, not be required to be labeled on both sidewalls with the DOT symbol and the manufacturer's three-digit code required by Standard No. 109.

The requests have been found reasonable. In order to avoid unnecessary costs and allow for a smoother transition to the new requirements, Standard No. 109 is by this notice amended to provide that tires manufactured from March 1, 1971 to May 22, 1971, shall either meet the requirements of § 574.5, or, on both sidewalls, contain the DOT symbol and the manufacturer's three-digit code number required by S4.3(d) and S4.3(i) of Standard No. 109. Thus, tires manufactured during this period may be marked according to the current system, the new one effective May 22, 1971, or both.

Because this amendment to Standard No. 109 relieves restrictions and imposes no additional burden on any person, it is found that notice and public procedure thereon are unnecessary and impracticable, and that, for good cause shown, an effective date earlier than 180 days after issuance is in the public interest.

Issued on February 26, 1971.

Douglas W. Toms,  
Acting Administrator

36 F.R. 4290  
March 4, 1971



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

(Docket No. 69-12; Notice No. 2)

A proposal to amend Part 571 (formerly Part 371), Federal Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires—Passenger Cars" was published on July 11, 1969 (34 F.R. 11501), as a notice of proposed rule making to delete the exemption for deep-tread, winter-type tires contained in the high-speed requirements. Interested persons were invited to submit comments to this notice.

Federal Motor Vehicle Safety Standard No. 109 (49 CFR 571.21), as amended (33 F.R. 19711), specifies tire dimensions and laboratory test requirements for bead unseating resistance, strength, endurance and high-speed performance; defines tire load ratings; and specifies labeling requirements for new pneumatic tires for use on passenger cars manufactured after 1948.

Paragraph S5.5.4 of Standard No. 109 specifies that for the high-speed performance aspects of the standard, tires are to be tested at 75 m.p.h. for 30 minutes, 80 m.p.h. for 30 minutes, and (except for deep-tread, winter-type tires) 85 m.p.h. for 30 minutes.

Because, in actual practice, deep-tread, winter-type tires are often required to perform at the same rate of speed as other type passenger car tires it was considered in the public interest to amend S5.5.4 to require the same level of high-speed performance of deep-tread, winter-type tires as other type tires are required to meet.

Several comments, including comments from one association representing new tire manufacturing companies, stated that the deep-tread, winter-type tires had groove depths deeper than conventionally treaded tires and that shoulder

temperatures of the tires on the laboratory test wheel operating at 80 m.p.h. are comparable to actual highway speeds in excess of 100 m.p.h. These commentators also indicated that to comply with the proposed amendment, the tread depths and lug configurations for the deep-tread, winter-type tires would have to be redesigned. However, research conducted for the Bureau has indicated that all deep-tread, winter-type tires when properly designed and constructed will conform to the present high-speed requirements for conventionally treaded passenger car tires. In addition, test wheel data submitted show that although the temperature of the crown of the tire of deep-tread, winter-type tires may run higher during the high-speed wheel test the difference in shoulder temperature appears insignificant.

Since deep-tread, winter-type tires must often perform at the same motor vehicle speeds and driving conditions as conventionally treaded tires, it is in the public interest that they meet the same minimum performance levels.

In consideration of the above, Federal Motor Vehicle Safety Standard No. 109 paragraph S5.5.4 is amended . . .

This amendment becomes effective January 1, 1971.

Issued on July 8, 1970.

Douglas W. Toms,  
Director,  
National Highway Safety Bureau

35 F.R. 11241  
July 14, 1970





# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

(Docket No. 70-2; Notice No. 2)

A proposal to amend Federal Motor Vehicle Safety Standard 109, New Pneumatic Tires—Passenger Cars, 49 CFR Part 571, was published on April 22, 1970 (35 F.R. 6440). The purpose of the proposed rule was to prevent the sale of tires that failed to pass the passenger car tire standard Motor Vehicle Safety (Standard No. 109) but were nevertheless being sold for passenger car use. As indicated in the notice of the proposed rule, Bureau investigations disclose that this has been a widespread practice. The use of such tires on passenger cars is considered a safety hazard.

In spite of the notice and press releases on the subject, the Bureau has found that unscrupulous distributors and dealers are continuing to buff off restrictive labeling on the tires and are selling them to unsuspecting members of the public. This amendment is therefore necessary to control the relatively large number of tires being reclassified and to provide a better means of enforcing the regulation against persons who are selling these tires for passenger car use.

The amendment changes the passenger car tire standard to require tires that are not certified by the manufacturer as complying with the passenger car tire standard to be branded with the phrase "Unsafe for Highway Use" and to have a label attached indicating that sale of the tire for passenger car use subjects the person selling the tire to a \$1,000 civil penalty. The amendment also requires tire manufacturers to report to the Bureau periodically on the number of these tires sold and the names of distributors or dealers to whom they are sold.

Interested persons have been offered an opportunity to participate in the making of this amendment. It was almost unanimously agreed that

there should be some restrictions placed on tires that had not been certified as complying with Standard No. 109. Several comments to the notice objected, however, to the requirement that the phrase "Unsafe for Normal Highway Use" be on the tire, on the ground that the word "Normal" was ambiguous. This designation has been found to have merit, and the word "Normal" has been omitted from the required phrase.

The requirement that the phrase be superimposed upon the manufacturer's name, or brand name, with lettering three-quarters of an inch high was objected to because the phrase would not be legible and could be easily removed. To avoid these problems, the requirement has been changed to provide that the phrase "Unsafe for Highway Use" be placed between the maximum section width and the tread and the height of the lettering reduced to one-half inch.

The proposal that the lettering of the term signifying the tire was unsafe for highway use be one-sixteenth of an inch deep was objected to because some tire casings have less than one-sixteenth of an inch of rubber on the outside of the sidewall and the alternative of one-half the thickness of the rubber covering the outside ply was not meaningful because the thickness could not always be determined. However, it is essential that the lettering be deep enough so that any attempt to buff it off will be easily recognizable and, therefore, the requirement that the lettering be one-sixteenth of an inch deep is being maintained. The change from the proposal to allow the lettering to be located anywhere between the maximum section width and the tread will allow the manufacturer to select a location where the rubber thickness is sufficient to impress lettering one-sixteenth of an inch.

Some comments suggested that the words "tube" or "tubeless" be required on the tire, even though the tire would not be used for passenger cars. This suggestion has been adopted in the final rule.

The requirement that the maximum inflation pressure and the maximum load rating be on the tire was omitted because they pertain to tires manufactured for passenger car use, not tires for off-road usage.

Some comments objected to the requirement that manufacturers report the quantity and serial numbers of reclassified tires sold and the names of distributors and dealers who purchase them. It was argued that keeping track of serial numbers, and distributors or dealers the tires were sold to would be burdensome and serve no safety related purpose. The Bureau feels that reporting of reclassified tires that are unsafe for highway use will provide the necessary control over these reclassified tires to assure that the tires will not be sold for passenger car use. Therefore, the reporting requirements have been maintained.

In consideration of the foregoing, Title 49—Transportation, Chapter V—National Highway Safety Bureau, Department of Transportation, Subchapter A—Motor Vehicle Safety Regulations, Part 571—Federal Motor Vehicle Safety Standard No. 109, New Pneumatic Tires—Passenger Cars is amended.

Effective date: December 1, 1970.

Since this amendment is designed to prevent a practice which can endanger the lives and property of the general public and because no comments were received objecting to the proposed effective date of December 1, 1970, in the notice of proposed rulemaking, good cause is shown that an effective date earlier than 180 days after issuance is in the public interest.

Issued on October 22, 1970.

Douglas W. Toms,  
Director

**35 F.R. 16734**  
**October 29, 1970**

# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **New Pneumatic Tires—Passenger Cars**

**(Docket No. 71-4; Notice No. 1)**

Federal Motor Vehicle Safety Standard No. 109, 49 CFR Part 571, as amended (35 F.R. 16735), specifies requirements for passenger car tire dimensions and laboratory test requirements, defines tire load ratings, specifies labeling requirements and sets forth the limited conditions under which passenger car tires that are not certified as complying with the standard may be sold. One of the labeling requirements of the standard (S4.3(d)) is that each tire be labeled on both sidewalls with the manufacturer's name or, if the tire is a brand name tire, with the brand name and an approved code mark assigned the manufacturer by the National Highway Traffic Safety Administration (formerly the National Highway Safety Bureau). Another labeling requirement (S4.3(i)) in the standard is that each tire contain on both sidewalls a certification statement or the symbol DOT, constituting the manufacturer's certification that the tire conforms to the standard. Both of these requirements are affected by the Tire Identification and Recordkeeping Regulation (49 CFR Part 574), as revised and published in this issue of the *Federal Register* (36 F.R. 1196), in that the Tire Identification and Recordkeeping Regulation specifies the location of the DOT symbol and requires that it be on either sidewall of the tire. Part 574 also establishes a system whereby all tire manufacturers apply for an assigned two-symbol code designation which is to be part of the tire identification number and placed on either sidewall. It is intended that these requirements take the place of the requirements in Standard No. 109 that tire manufacturers be assigned a three-number code and that it be placed on both sidewalls of brand name tires.

In view of the above, S4.3 of the passenger car tire standard is amended as set forth below to reconcile the requirements of Standard No. 109 with the requirements of the Tire Identification and Recordkeeping Regulation.

In addition, the labeling requirements (S4.3) are changed as set forth below to make it clear that each tire shall be labeled with only one size designation found in the tables in Appendix A of Standard No. 109, except that tires may have equivalent inch and metric size designations. The labeling requirements are further changed by deleting the paragraph which deals with tires manufactured before August 1, 1968, since the exception is no longer relevant.

Requirements for reclassified tires (S6.) are being amended to provide that the serial number required by S6.1(c), and the manufacturer's code symbol, if used, can be on either sidewall.

It is further noted that the correction published in the *Federal Register* of November 26, 1970 (35 F.R. 18118), was inaccurately stated as "for the period covering November 1, 1970 through July 31, 1971". Actually, the phrase to be corrected was "for the period covering December 1, 1970 through July 31, 1971." S6.2 should read "for the period covering December 1, 1970 through June 30, 1971", and for clarity S6.2 is republished with the correct language.

In consideration of the foregoing, Standard No. 109 of § 571.21 of Title 49, Code of Federal Regulations, is amended.

Effective date: May 22, 1971.

Because this amendment to Standard No. 109 relieves restrictions, clarifies the intent expressed in the standard, makes a correction to the standard and imposes no additional burden on any person, notice and request for comments on such notice are found to be unnecessary and impracticable, and good cause is shown that an effective date earlier than 180 days after issuance is in the public interest.

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Issued on January 19, 1971.

Douglas W. Toms,  
Acting Administrator, National  
Highway Traffic Safety Administration

**36 F.R. 1195**  
**January 26, 1971**

# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **Reclassified Tires**

**(Docket No. 70-2; Notice 4)**

The purpose of this notice is to amend Motor Vehicle Safety Standard No. 109, to prohibit the manufacture and sale of passenger car tires that do not meet the performance requirements of the standard. Such tires are presently allowed to be sold as "reclassified tires." A notice proposing this action was published on November 27, 1971 (36 F.R. 22688).

Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires," was amended October 29, 1970 (35 F.R. 16743), to allow passenger car tires which manufacturers did not certify as conforming to the performance tests of the standard, to be sold for off-highway purposes. The amendment required such tires to be labeled so that purchasers would be aware that they were considered unsafe for highway use. Moreover, manufacturers of such tires were required to report semi-annually to the NHTSA the number of tires sold. The purpose of the requirement was to allow the sale of such tires for off-highway purposes where a legitimate market existed for low-priced inexpensive tires, and where the fact that they failed to meet Federal performance tests would not pose a threat to users. Despite the conditions imposed by this amendment, the NHTSA continued to receive reports that significant numbers of these tires were being sold by unscrupulous dealers for passenger car, on-highway use.

Based upon its investigative efforts, and the material submitted to the docket in response to the notice of November 27, 1971, the NHTSA has determined that the continued sale of these tires should be prohibited, and that the substance of the rule proposed on November 27, 1971, should be implemented. Data which the NHTSA receives from manufacturers show an annual

production of these tires in the neighborhood of 200,000 units. The NHTSA has concluded that it cannot by enforcement measures alone prevent a significant number of these tires from being sold as "reclassified tires" for use on motor vehicles.

As indicated in the preamble to the notice of November 27, the tire industry manufactures tires designed specifically for off-road applications which are not greatly more expensive than most reclassified tires. The dangers that may result from vehicles equipped with substandard tires far outweigh, in the opinion of NHTSA, the economic benefits obtainable from allowing these tires to be sold for off-road purposes.

Certain issues raised by the comments to the notice of proposed rulemaking have been determined to be of merit, and they are incorporated into this amendment. The comments pointed out that the reference to all tires of the type and size designation found in the appendix of Standard No. 109 included tires other than passenger car tires, namely, certain tires manufactured for agricultural purposes that are not required to conform to Standard No. 109. As issued, this amendment applies only to those tires of a type and size designation appearing in the appendix of Standard No. 109 that are designed for use on passenger cars.

The comments also pointed out that prohibiting the sale of these tires as of the amendment's effective date would penalize many dealers who may have large stocks of such tires on hand. It was not the NHTSA's intention to penalize dealers, who in good faith have purchased such tires for sale as "reclassified tires" under existing regulations, but rather to prevent the further reclassification of tires by manufacturers, and to

require them to dispose of such tires in a way that their use as motor vehicle equipment will be impossible. This amendment, therefore, applies to tires manufactured (not sold) after its effective date and prohibits, after that date, the further reclassification of tires and their sale by manufacturers. "Reclassified tires" presently on dealer's shelves may continue to be distributed and sold in accordance with the existing provisions (S6.) of Standard No. 109 dealing with reclassified tires until supplies are exhausted.

The comments further pointed out that the language of the notice that prohibited the sale of these tires "for any purpose" would not allow them to be sold even for scrap materials. The comments indicated that advantageous uses for scrap tires are presently being developed. The NHTSA has no reason to prevent the sale of these tires if their use as motor vehicle equipment is impossible, and the amendment allows their sale as scrap materials.

In light of the above, Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires," appearing at 49 CFR 571.109, is amended . . . .

*Effective date:* October 1, 1972. The purpose of this amendment is to prevent a practice which is in violation of existing regulations, and whose continuance poses a threat to all users of the highways. Accordingly, it is hereby found that good cause exists for an effective date less than 180 days from the day of issuance.

This notice is issued under the authority of sections 103, 112, 119, and 201 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1392, 1401, 1407, 1421) and the delegation of authority at 49 CFR 1.51.

Issued on August 11, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 16604**  
**August 17, 1972**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires—Passenger Cars****(Docket No. 71-23; Notice No. 2)**

The purpose of this notice is to amend Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires", to require safety labeling information to be placed on the tire between the maximum section width and the bead, in order that this information can be retained on the casing if the tire is retreaded. A notice of proposed rulemaking regarding this subject was issued on December 21, 1971 (36 F.R. 24824).

A majority of the comments received in response to the notice agreed with the intent of the proposed amendment. However, objections were raised to the proposed requirement that the labeling information be located between the maximum section width and the bead on both sidewalls. The comments indicated that the use of white-wall designs limited the area between the section width and the bead, and that as a consequence, certain labeling information is placed between the maximum section width and the shoulder area to comply with the labeling requirements of Standard No. 109. Placing the information between maximum section width and bead on both sidewalls would evidently require the redesigning both of molds and lines of tires.

The agency has concluded after review of the information submitted to the docket that all

labeling information should be located on both sidewalls of the tires as presently required by Standard No. 109. However, in response to the objections to the proposed requirements, only one sidewall is required to have the labeling information between the maximum section width and the bead. This will still allow information to be retained on casings so that retreaders need not relabel tires in meeting the requirements of Standard No. 117 (49 CFR 571.117).

In light of the above, Paragraph S4.3 of Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires", § 571.109 of Title 49, Code of Federal Regulations, is amended . . . .

*Effective Date:* July 1, 1973.

This notice is issued under the authority of sections 103, 112, 113, 114, 119 and 201 of the National Traffic and Motor Vehicle Safety Act, 15 USC 1392, 1401, 1402, 1403, 1407, 1421, and the delegation of authority at 49 CFR 1.51.

Issued on October 31, 1972.

Charles H. Hartman  
Acting Administrator

**37 F.R. 23536**

**November 4, 1972**





## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

(Docket No. 71-23; Notice 3)

(Docket No. 1-8; Notice 10)

This notice amends Motor Vehicle Safety Standards Nos. 109 and 117 (49 CFR 571.109) to reduce the minimum size of permanent safety labeling to 0.078 inches. Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires," was amended November 4, 1972 (37 F.R. 23536), to specify both a location on the tire sidewall for safety labeling and a labeling size of not less than  $\frac{3}{32}$  of an inch. Motor Vehicle Safety Standard No. 117, "Retreaded Pneumatic Tires", was amended March 23, 1972 (37 F.R. 9590), to specify permanent labeling of the same minimum size.

The Michelin Tire Company has protested that the  $\frac{3}{32}$  inch minimum size is inconsistent with the existing practice of European tire manufacturers of labeling tires in letters having a size of 0.078 inches (2mm). It has pointed out that as a consequence of the amendment, European tire manufacturers will have to increase the size of all existing labeling. The NHTSA has concluded that the difference between letters 0.078 inches in size and those of 0.093 inches is not significant, and does not justify the resultant expense to manufacturers of modifying tire molds. By this notice the NHTSA therefore reduces the minimum size to 0.078 inches for labeling required by S4.3 of Standard No. 109.

Because the permanent labeling provisions of Standard No. 117 are intended to be ultimately met with new tire labeling, the size requirements for permanent labeling in that standard are also modified.

In light of the above, Motor Vehicle Safety Standard No. 109, 49 CFR 571.109, and Motor Vehicle Safety Standard No. 117, 49 CFR 571.117, are amended as follows:

Effective dates: July 1, 1973, for the amendment to S4.3 of 49 CFR 571.109; February 1, 1974, for the amendment to S6.3.2 of 49 CFR 571.117. These amendments relieve an unnecessary restriction without a significant effect on motor vehicle safety. Consequently, it is found for good cause that notice and public procedure thereon are unnecessary, and that an effective date less than 180 days from the day of issuance is in the public interest.

(Secs. 103, 112, 113, 114, 119, 201, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1401, 1402, 1403, 1407, 1421; delegations of authority at 49 CFR 1.51.)

Issued on March 8, 1973.

James E. Wilson  
Acting Administrator  
**38 F.R. 6999**  
**March 15, 1973**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

(Docket No. 71-10; Notice 3)

This notice amends the requirements for high speed performance and endurance applicable to passenger car tires in Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires", by adding additional criteria to the description of tire failure. A notice of proposed rulemaking on which this amendment is based was published September 20, 1972 (37 F.R. 19381). That notice proposed to modify the criteria for tire failure in both Standard No. 109 and Standard No. 117, "Retreaded Pneumatic Tires". As the tests for high speed performance and endurance have been revoked in Standard No. 117, this amendment affects only the requirements of Standard No. 109.

The proposal of September 20, 1972, was designed to expand the description of tire failure to include certain characteristics which had appeared in tires tested by NHTSA, and which were considered to be evidence of potential in-service tire failure, but which were not specifically prohibited by the existing language of the standard. These conditions included tread-groove cracking, deep sidewall separations, and damage to areas such as the tire innerliner. Standard No. 109 presently prohibits tires tested to the high speed performance and endurance tests of the standard from exhibiting "tread, ply, cord, or bead separation, chunking, or broken cords". The proposal would have prohibited, as a result of either of the two tests, the displacement of any tire component from its design position, including partial or complete separation of any component from any other component, but would not have prohibited exposure of chafer fabric and surface cracking that did not expose ply cord or belt cord. Any crack in a tread groove that exceeded three-sixteenths of an inch

in length would, however, have also been prohibited. The proposal also contained an "air-loss" test, which would have required the tire to retain at least 95 percent of its initial inflation pressure when measured immediately after each performance test.

Numerous comments were received in response to the proposal. While most were in agreement with its general purpose, to provide a more inclusive definition of tire failure, almost all disagreed with the method proposed. The principal objection, raised by the Rubber Manufacturers' Association and major tire companies, was that the proposed language was too broad: that it included within the concept of tire failure many conditions that were in no way detrimental to tire performance. It was pointed out that many such conditions might exist in tires before laboratory wheel tests had been conducted and were considered by industry to be no more than inconsequential manufacturing imperfections. The comments argued that such conditions included cracking at an innerliner splice, innerliner blisters, innerliner folds, mold off-register, sidewall blisters, light tread, tearing or chipping of tread element, cord impression in the bead area, light bead, and bead cracks at the toe. The comments suggested as an alternative to the proposed language that the requirements be revised to specifically include the problem conditions that NHTSA testing had produced, and provided possible definitions to describe these conditions.

The NHTSA has determined that this suggested approach will satisfy the purpose of the proposal, and adopts it essentially as suggested by the domestic tire industry. Prohibitions against sidewall and innerliner separation, cracking, and open splices will be added to

the standard. New definitions, for "innerliner" and "innerliner separation", "cracking", "open splice", and "sidewall separation" are added to the standard. These definitions are essentially as suggested by the Rubber Manufacturers' Association, with the exception of "innerliner separation". The suggested definition would have limited tire failures involving innerliner separation to those demonstrating air loss. The NHTSA has not adopted this air-loss restriction for the following reasons. First, the NHTSA is of the opinion that innerliner separation exhibited on a "hot tire", one having just completed either of the laboratory wheel tests, is evidence of potential in-service tire failure, irrespective of whether actual air loss has occurred at that point. Second, the air-loss test adopted for the standard, and discussed in greater detail below, measures only a gross, or substantial air loss occurring during the test, and not the type of lesser air-loss that might result from an innerliner separation.

The standard is presently silent with respect to the method for determining whether the prohibited tire conditions exist. Several comments proposed that the failure modes be determined "visually". One comment suggested that touch, or X-rays, be specified. As amended, the standard specifies that prohibited conditions will, consistently with the larger body of opinion, be determined visually. This method is that used by NHTSA in past testing, and it has proven satisfactory. It is specifically included in the standard for purposes of clarification, but is not intended to preclude the use of simple hand magnification.

The standard is likewise silent on the issue of a given tire's condition before the running of the two laboratory wheel tests. The position taken by NHTSA in its enforcement of this standard up to now is that the specified laboratory tests are not required to be performed in order for a tire to be considered a failure, when the tire evidences any of the prohibited conditions before it is subjected to either test. The Rubber Manufacturers' Association submission to this docket implicitly reflects this point of view. The substance of that submission was that the proposed language would have categorized as failures certain conditions which appear in

untested, newly manufactured tires. The NHTSA is specifically amending Standard No. 109 in this issuance to reflect past agency interpretation and enforcement practice, by adding to the general requirements language prohibiting any tire before test from exhibiting those characteristics prohibited after either of the laboratory wheel tests.

One comment requested that a minor loss of tread resulting from the micro-siping process should not be considered a failure, despite the fact that this condition arguably comes within the prohibitory language. The position of the NHTSA is that micro-siping should be treated similarly to any other manufacturing process. Consequently, the removal of very small tread section during micro-siping, which is part of the manufacturing process, will not be considered a nonconformity. However, where the chunking of tread occurs as a result of the specified laboratory wheel tests, it will be considered a failure regardless of its amount.

One comment argued that the proposed test procedure, calling for a test rim that undergoes no permanent deformation, was not reflective of actual conditions. It argued that such a rim would have to be of massive construction, and suggested alternatively the continued use of existing test rims. The comment misunderstands the purpose of the procedure. The condition precluding any permanent deformation of the rim is intended only to ensure, together with the other language regarding air loss, that any air leaks will result necessarily from the tire, and not the test device. In other words, the provision is inserted to ensure that the tire will not be "blamed" for any air loss due to rim deformation. The condition that the rim undergo no permanent deformation is not intended to require the manufacture of a new genre of test rims: in practice, test rims currently in use do not deform significantly during the laboratory wheel test procedures, and the amended regulation will not prevent their continued use.

Many comments objected to the proposed air loss test, requiring the tire to have at least 95 percent of its original cold inflation pressure when tested immediately after both the high speed and endurance tests. The comments argued that conducting an air-pressure reading imme-

diately after the running of the tests was potentially hazardous to persons conducting the test. In addition, certain comments argued that the 95 percent air-retention requirement was inadequate, in that the test called for the measurement to be made on a "hot" tire, and the pressure would be significantly less if the tire were first allowed to cool.

The NHTSA has retained in the amendment both an air-loss test, and the requirements that the measurement be made, as proposed, immediately after both the high speed and endurance tests are completed. The NHTSA believes that inspection of the tire to determine if any prohibited conditions exist should be made when the tire is still at the higher temperatures created during the laboratory tests. As tires do increase in temperature during actual use, the inspection of tested tires at higher temperatures provides a more realistic environment for the discovery of conditions that can result in failure. Thus, it becomes mandatory to conduct the air-loss test immediately after the tire has been subjected to the laboratory wheel tests in order that the inside of the tire can be examined for failure modes while the tire is still at higher temperatures.

The NHTSA does not consider an objection to a test requirement on the basis that it may present a hazard to testing personnel to have merit. Test laboratories are places where products are subjected to extreme, often destructive, processes under controlled conditions by trained technicians using whatever equipment and safeguards are necessary, in order to assure the safety of the public that must use those products under uncontrolled conditions without comparable training or safeguards. The NHTSA is not indifferent to the safety of test technicians. On the contrary, it urges those in charge of test laboratories to take all necessary steps to assure the safety and health of their employees. But if a particular method of running a regulatory test such as the one in question here is found hazardous to test personnel, the proper remedy is not to change the regulation, but to devise methods and

equipment to perform the test process safely. The NHTSA is confident that modern technology and the testing profession are equal to the task.

The argument that the proposed test allowed a significant air loss to occur is meritorious. The NHTSA has modified the proposal by restricting the allowable air-loss to not less than the tire's inflation pressure at the beginning of the tests. Admittedly, this modification is not fully responsive to the comments, for this requirement permits as well a rather significant air loss. However, the air-loss test is designed to prevent only gross, exaggerated air-loss, and not instances of slow air leaks. Moreover, while tire inflation pressure will increase under test, it appears that the amount of increase may vary greatly from test to test. Variables such as tire expansion may also affect any increase in inflation pressure. Consequently, it is difficult to establish a value, in excess of the original pressure, that can accurately indicate a condition of air loss. The NHTSA has determined, therefore, to require only that the tire, when hot, have at least its initial cold inflation pressure. This lowers the amount of permissible air loss from that proposed, prohibits the exaggerated air loss which is NHTSA's primary concern, and still takes into account the variations in inflation pressure increase that may occur.

In light of the above, Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires," appearing at 49 CFR § 571.109, is amended. . . .

Effective date: March 29, 1974.

(Sections 103, 119, 201, and 202 Public Law 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421, and 1422; delegation of authority at 49 CFR 1.51.)

Issued on September 24, 1973.

James B. Gregory  
Administrator

38 F.R. 27050  
September 28, 1973



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires—Passenger Cars****(Docket No. 71-10; Notice 5)**

This notice responds to petitions for reconsideration received in response to the notice, published September 28, 1973 (38 F.R. 27050), revising the performance requirements of Motor Vehicle Safety Standard No. 109 (49 CFR 571.109). That notice modified the criteria for tire failure when tires are subjected to the high speed performance and endurance tests of the standard.

Timely petitions for reconsideration were received from five parties: The Firestone Tire and Rubber Company, Rubber Manufacturers' Association, Uniroyal Tire Company, B. F. Goodrich Tire Company, and the General Tire and Rubber Company. The petitions requested the agency to reconsider the definition of "innerliner separation" and the requirement that the tire be removed from the test wheel for inspection immediately after the prescribed tests are completed.

The petitions have argued that the definition of "innerliner separation" (a "parting of the innerliner from the carcass") is inconsistent with the definition of "carcass" ("the tire structure, except tread and sidewall rubber"), for the former unlike the latter creates the inference that the innerliner is not part of the carcass. One petitioner (B. F. Goodrich) argued that innerliner should not be considered part of the carcass and would redefine carcass to so specify. The NHTSA agrees with the comments which argue that the definition of "innerliner separation" should reflect that the innerliner is part of the carcass. That definition is accordingly modified as recommended by the petitions to mean a separation of the innerliner from the cord material of the carcass. The NHTSA believes no ascertainable benefit would be achieved by further

distinctions within the definition of "carcass." The requirement prohibiting the separation of the innerliner from the carcass cord material is the same whether or not the definition of "carcass" is further refined.

The petitions also state that innerliner is frequently composed of more than one layer of material. The definition of innerliner is revised to take this into account. However a separation of one innerliner layer from another does not constitute "innerliner separation" under the standard. That term means only a separation of the innerliner from the carcass cord material. The requirements specify that "visual evidence" of enumerated conditions will constitute a failure to the standard. The NHTSA believes the visual test, which has been consistently used in the past, to be satisfactory. However, in the case of innerliner separation, the visual evidence may not reflect an actual separation of the cord material from the innerliner. In such cases the standard is not intended to preclude a more detailed examination of the condition, including a cutting of the tire. This procedure has been afforded to manufacturers in past NHTSA enforcement efforts, and is considered consistent with the revised requirements.

The petitions also requested modification of the requirement that each tested tire be removed from the test wheel for inspection immediately after its testing is completed. The petitions argue that rapid deflation of a hot tire can cause innerliner separation. While several petitions recommended that the tire be allowed to cool to ambient temperature, Uniroyal has indicated that a one-hour period had been found sufficient to eliminate the chance that artificially caused separations will occur. The NHTSA agrees with the comment from Uniroyal that a one-hour

period is adequate for the tire to cool and has amended the standard accordingly.

The Rubber Manufacturers' Association has argued that minor nicks and tears in the tread which would not grow in size during service might be improperly considered "chunking" under the standard. RMA alludes to the discussion of the micro-siping process in the preamble to the notice of September 28, 1974, claiming it recognizes that small pieces of the tread can be broken away which do not affect performance. The standard is clear that chunking in a new tire before testing will be considered a failure. A minor tear in the tread does not appear to involve a removal of rubber from the tire, and is not within the definition of chunking. Whether a "nick" in the tread represents chunking would necessarily be based on its size. As in micro-siping, minor tread loss resulting from the manufacturing process that is evident before test does not constitute a failure. Any loss resulting from the laboratory wheel test is a failure.

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In light of the above, Motor Vehicle Safety Standard No. 109, "New Pneumatic Tires," appearing at 49 CFR 571.109, is amended. . . .

Effective date: March 29, 1974. This amendment modifies slightly amendments whose effective date was originally established as the above date on September 28, 1973. As these amendments relieve restrictions, provide clarification, and impose no additional burden on any person, good cause is found for an effective date less than 30 days from publication.

(Secs. 103, 110, 201, and 202, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421, and 1422; delegation of authority at 49 CFR 1.51.)

Issued on March 25, 1974.

James B. Gregory  
Administrator

**39 F.R. 11423**  
**March 28, 1974**



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109****(Docket No. 74-3; Notice 2)**

This notice amends Motor Vehicle Safety Standard No. 109 (49 CFR 571.109) to specify the use of test wheels having up to 6 test positions in NHTSA compliance testing. A notice of proposed rulemaking regarding this subject was published January 10, 1974 (39 F.R. 1516).

Standard No. 109 has not previously specified the number of test positions which may be present on any given test wheel. Agency testing has been conducted on test wheels having up to six positions, which appears to be the maximum capacity of these wheels. The NHTSA is of the opinion that this testing is fully consistent with the standard's test procedure, but in order to avoid legal disputes has decided to clarify the standard by specifically incorporating into it NHTSA's present compliance testing practice.

The one comment which was received regarding the proposal did not object to the amendment's substance, but requested that temperatures be carefully monitored in NHTSA testing. The test temperature is specified in the standard and applies to each test regardless of the number of positions on a given test wheel. The NHTSA

will continue to carefully monitor its tire testing program to ensure the accuracy of the results obtained.

In light of the above, 49 CFR § 571.109 (Motor Vehicle Safety Standard No. 109) is amended by the addition of a new paragraph (f) in S4.2.1 . . . .

Effective date: October 7, 1974. This amendment is clarifying in nature, reflecting present practice, and poses no additional burden on any person. Consequently, good cause is found for an effective date less than 180 days from publication.

(Secs. 103, 108, 119, 201 and 202, Pub. L. 89-563; 80 Stat. 718; 15 U.S.C. 1392, 1397, 1407, 1421, 1422; delegations of authority at 49 CFR 1.51.)

Issued on August 30, 1974.

James B. Gregory  
Administrator

**39 F.R. 32321**  
**September 6, 1974**



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires****(Docket No. 74-29; Notice 1)**

This notice republishes and corrects the text of Federal Motor Vehicle Safety Standard No. 109 (49 CFR § 571.109a), excluding Table I of the Appendix.

The corrections eliminate both typographical errors which occurred in the codification of the standard (in the *Code of Federal Regulations*) and material now extraneous as a result of amendments to the standard and the adoption of the Tire Identification and Recordkeeping Regulations, 49 CFR Part 574. The corrections are as follows:

(1) Figure 1 is deleted, and Figures 2 and 3 are redesignated Figures 1 and 2 respectively.

(2) Paragraph S5.2.1.3 and S5.2.2.1 are modified to reflect the changes in the designations of Figures 2 and 3.

(3) Paragraph S6 is corrected to reflect the amendment of August 17, 1972 (37 F.R. 16604), by deleting paragraph S6.1 and the paragraphs following.

The notice also redesignates the standard as § 571.109. The previous designation, § 571.109a, resulted from an amendment (38 F.R. 27050, September 28, 1973) with a future effective date (March 29, 1974) outstanding at the time the most recent version of the Code was published. The passing of that effective date eliminates the need for Section 571.109a.

In light of the above, § 571.109a (excluding Table I of the Appendix) of Title 49, Code of Federal Regulations, is redesignated § 571.109 and corrected and republished . . . .

(Secs. 103, 119, 201, 202, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421, 1422; delegations of authority at 49 CFR 1.51.)

Issued on August 7, 1974.

James B. Gregory  
Administrator

**39 F.R. 31322**  
**August 28, 1974**



# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **New Pneumatic Tires**

**(Docket No. 74-25; Notice 2)**

This notice amends the definition of "test rim" in 49 CFR 571.109 (Motor Vehicle Safety Standard No. 109) and modifies related provisions of that section and section 571.110 (Motor Vehicle Safety Standard No. 110). A conforming amendment is made to similar provisions in section 571.119 (Motor Vehicle Safety Standard No. 119). The notice of proposed rulemaking on which this amendment is based was published on July 10, 1974 (39 F.R. 25329).

The definition of "test rim" has previous to this amendment referenced the 1967 and earlier editions of publications of various foreign and domestic tire and rim associations as the source for determining rim specifications and appropriate tire/rim matching information for testing tires to the requirements of Motor Vehicle Safety Standard No. 109, and for equipping passenger cars pursuant to Motor Vehicle Safety Standard No. 110. The Rubber Manufacturers' Association petitioned that this reference be changed because the publications have become outdated in terms of the rim information they provide. This amendment, which adopts the proposed rule of July 10, 1974, in essentially the form proposed, deletes the references to the 1967 and earlier publications and substitutes for them the publications of the various associations current at the time of tire manufacture.

Under the amendment, a "test rim" will be any rim listed for use with a tire size designation in any of the current publications of the various foreign and domestic tire and rim associations. The listing will apply to all tires that fit the description (by tire size designation, use category, etc.) unless the publication itself or a separately published manufacturer's document states otherwise. A manufacturer wishing to except any

tire manufactured by him from any listing would be expected to request the association to publish the exception in its publication. If it does not, the manufacturer must himself publish the exception in his own listing, which he must distribute to his dealers, this agency, and to any member of the public on request. The language of the proposal is clarified, and a conforming amendment made to Standard No. 119 to show that an exception must be published in each association publication listing the tire and rim combination. The amendment further specifies that a "listing" of a rim must contain dimensional specifications, including diagrams, for the rim. This is necessary to provide for uniformity of rim dimensions and reflects the present practice of association publications of publishing such dimensional specifications. However, dimensional specifications or a diagram of a rim need not be included in manufacturers' separate listings if the specifications and diagram for the rim appear in each association publication where it is listed.

By referencing the current publications, the amendment ends the need for Appendix "A" of Standard No. 110, which lists tire/rim combinations approved for use subsequent to the 1967 and earlier associations publications. The associations and various manufacturers should ascertain that all tire/rim combinations presently listed in that Appendix are incorporated into at least one of their respective publications before the effective date of this amendment. Moreover, the addition of new tire/rim combinations subsequent to the effective date becomes the sole responsibility of the industry. Appendix "A" of Standard No. 109, listing tire size designations, is not affected by this amendment.

An effect of the amended definition of test rim is to clarify this agency's position that each tire must be able to pass each performance requirement (except that for physical dimensions) of Standard No. 109 with any rim with which it is listed, regardless of rim width, unless that tire is specifically excepted from each listing where it appears. The requirements for physical dimensions must be met only on a test rim of the width specified for the tire size designation in Standard No. 109. A tire failing the requirements on any test rim would be considered as having failed the requirements on all test rims. This continues existing NHTSA enforcement policy.

One of the two comments received regarding the proposal objected to this aspect of the amendment, arguing that some manufacturers have traditionally certified conformity on the basis of test results using only the test rims of the specified test rim width and that no safety problems had been encountered. The NHTSA believes, however, that the interest of safety demands that manufacturers ensure that tires certified as conforming to Standard No. 109 will conform to the standard's requirements on any rim which the manufacturer lists for use with the tire and with which the tire may consequently be used in service. This position has been reflected in the guidelines for the additions of new tire/rim combinations to the Appendix of Standard No.

110, which have required that the manufacturer demonstrate conformity to Standard No. 109 on each newly requested rim. If a manufacturer doubts the ability of his tires to conform to the standard on certain recommended rims, he has the option of excepting his tires from being used with those rims. No other objections to the proposed rule were received.

In light of the above, amendments are made to 49 CFR §§ 571.109, 571.110, and 571.119 . . . .

*Effective date:* August 5, 1975 for Standard No. 109 and 110; March 1, 1975, for Standard No. 119. The amendment to Standard No. 119 is of a clarifying nature, and should be made effective with the existing effective date of that standard. The amendment does not require substantial leadtime for conformity, and it is found for good cause shown that an effective date less than 180 days from publication is in the public interest.

(Secs. 103, 119, 201, 202, Pub. L. 89-563, 80 Stat. 718; 15 U.S.C. §§ 1392, 1407, 1421, 1422; delegation of authority at 49 CFR 1.51.)

Issued on January 31, 1975.

James B. Gregory  
Administrator

**40 F.R. 5529**  
**February 6, 1975**

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires

(Docket No. 74-25; Notice 4)

This amendment of safety Standard No. 109, *New Pneumatic Tires*, permits the manufacture of both a new series of tires having load ratings and inflation pressures expressed in metric units and a newly designed tire having a maximum inflation pressure of 60 psi. The change for metric-unit tires accommodates a world-wide standardization process, and the change for 60-psi tires accommodates tires designed as substitutes for conventional spare tires, in order to reduce the overall weight of, and increase storage space in, passenger cars.

*Effective date:* March 7, 1977.

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On September 30, 1976, the NHTSA published a proposed rule (41 FR 43192) to amend the requirements of Standard No. 109 (49 CFR 571.109) as indicated in the summary statement. All comments received supported the amendments, except that Dunlop Corporation suggested that adoption of metric-series tires be delayed while other approaches to the world-wide standardization of tire sizes and nomenclature are studied. Because the agency's ability to further modify the standard in response to future standardization efforts is not hindered by final action on metric-series tires, the proposed changes are adopted, for the reasons set forth below.

## TIRE PERFORMANCE REQUIREMENTS

Goodyear Tire and Rubber Company and the Rubber Manufacturers Association (RMA) peti-

tioned for the adoption of new requirements and test specifications necessary to permit the production of a metric-series family of tires that differ in specification and construction from existing tire types. The metric-series tires have load ratings expressed in kilograms (in place of pounds) and inflation pressures expressed in kilopascals (kPa) (in place of pounds per square inch (psi)).

Firestone Tire and Rubber Company petitioned for the adoption of new requirements and test specifications necessary to permit the production of a "temporary use" spare tire that differs substantially in specification and construction from conventional tires. This tire type has a higher inflation pressure (60 psi), different dimensions, and a shorter treadwear life than conventional tires. In some cases its diameter may differ from that of the conventional tires it is designed to replace.

The NHTSA concluded that the new tire types should be accommodated by appropriate revisions of the requirements and test specifications, as long as they can meet the same safety performance levels of the standard as conventional tires do. Data supplied by Firestone indicate that no significant degradation of vehicle handling occurs when the 60-psi tire is used on a vehicle in conjunction with three conventional tires, despite the substantial differences in its construction and other characteristics.

*Endurance and high-speed performance.* The standard sets forth endurance and high-speed performance requirements that are conducted by pressing the tire against a test wheel at various levels of force. The appropriate force levels are taken from tables of information contained in the standard that list each passenger car tire size presently produced for use in the United States.

In anticipation of deletion of these tire tables, the agency proposed that the appropriate force levels for the new tire types be stated as percentages of the maximum load rating of the tire, corresponding to the values set out in the standard's existing tables, but without the need to add additional tables to the standard.

Vehicle manufacturers, the RMA, and Goodyear requested that, in the case of metric-series tires, the new force levels be adopted using tire tables instead of the percentage method. Detailed review of the proposal demonstrates that use of a flat percentage would have an unintended result. Specifically, the tire selection standard for passenger cars (Standard No. 110, *Tire Selection and Rims* (49 CFR 571.110)) requires that the normal load-carrying ability assigned to a tire be no more than that used for the test loading in the Standard No. 109 high-speed performance test. Thus, the practical result of replacing specifically assigned test loads in Standard No. 109 with percentages would be an unintentional reduction of the tire's assignable load-carrying capabilities in some cases. Goodyear and the RMA provided tire tables for the metric-series tires that specify values that are approximately the same as the percentage values proposed.

Having reviewed these comments and the tables provided by the tire industry, the NHTSA finds that test values derived from the tables are, for safety purposes, virtually the same as the percentage values proposed and therefore fall within the ambit of the proposal. Accordingly, the agency has decided to incorporate additional tables in the standard as the basis for amendments of the high speed and endurance requirements for metric-series tires. Percentage values are required for the 60-psi tires because their tire tables do not list the appropriate values.

The general issue of deletion of tire tables from Standard No. 109 will be addressed comprehensively in future rulemaking.

With regard to the new tire tables, Goodyear and the RMA noted that additional metric-series tire sizes have been developed since the submission of their petitions. Firestone noted that additional 60-psi type tires have also been added to those proposed. These commenters asked that

the additional tire listings be added to the standard. Although not proposed, the agency believes that the new listings can be added to the standard in the same manner that routine tire table changes are regularly made by the agency in accordance with published procedures (33 FR 14964, October 5, 1968) (39 FR 28980, August 31, 1974). These guidelines specify procedures by which routine additions are made without notice, unless any objection is subsequently received.

Testing of a conventional tire on a test wheel is conducted at the "design" load level (with overloading in the case of endurance testing up to the maximum load rating of the tire) and corresponding inflation pressure. Because the 60-psi tire does not have a "design" load level but only a single load level at its maximum inflation pressure of 60 psi, the agency used this single load level as if it constituted the design load level. The RMA demonstrated that the single load level of these tires is more accurately characterized as its maximum load level, and that a lower load level would constitute the tire's design load. Because the 60-psi tire is intended only for occasional use as a spare tire, it is not assigned the lower "design" load ratings that are provided in the case of conventional tires to improve vehicle ride.

The NHTSA accepts this view of the 60-psi tire's design load rating and makes appropriate adjustments in the tables that appear in S5.4.2.3 and S5.5.1. In the case of inflation pressures, 52- and 58-pound values are utilized in Table III, consistent with comparable values for conventional tires.

*Strength requirements.* The agency proposed breaking energy requirements for the new tire types that are comparable to those for existing tires. The only comment on these proposed amendments were RMA suggestions for modification of terminology and the statement of breaking energy values in Table III. The test values are made final as proposed.

The RMA believed that reference to tires with a certain "designated" section width would be clarified by reference to "specified" section width instead. The agency disagrees, and notes that the word "designated" conveys the intended meaning that section width characteristics are



controlled by the manufacturer and not "specified" by this or any other Federal regulation.

In its comments on this and other aspects of the proposal, the RMA suggested that the listing of English-system equivalents following metric-system values (and vice versa) would improve the clarity and informational value of Standard No. 109. General Motors Corporation (GM) also encouraged the listing of measurement equivalents in safety standards.

The agency believes it made clear in its proposal the reason why the publication of equivalent values in a motor vehicle safety standard is totally inappropriate. Motor vehicle safety standards are not informational or advisory documents but rather are minimum standards which must be complied with on pain of civil penalty. For this reason they must be stated objectively, without confusion. Because the equivalence of the metric and English systems is not exact, using significant figures, the listing of approximate English-system equivalents in the standard would produce some confusion concerning what are the real test conditions or performance levels required. For example, several NHTSA requirements specify a 30-mph barrier crash as a procedure underlying certain minimum crashworthiness capabilities. If the metric equivalent (49 km/h) were listed next to this 30-mph value, it would convey the impression that the manufacturer (and the agency) has the choice whether to test at 30 mph or at 30.4 mph. Thus, the statement of an "equivalent value" that is not in fact equivalent only confuses in a regulatory environment where objectivity is important and is required by statute (15 U.S.C. § 1392(a)). For this reason, the RMA suggestion to add English-system and metric equivalents to Table II and the GM suggestion to add "dual dimensioning" throughout the standard are not adopted.

*Physical dimensions.* The NHTSA proposed a "growth allowance" for the new tire types that is comparable to the requirement for existing tires, with the addition of a 0.4-inch minimum for technical reasons in the case of both the metric-series tires and the 60-psi tire. Goodyear and the RMA requested that the 0.4-inch allowance be restated as a 10-millimeter allowance, in view of its association with metric series tires.

These requests are denied, because the 0.4-inch allowance is also associated with the 60-psi tire which does not have metric values. As a general matter, the agency intends to make a systematic change to metric measurements in its standards, rather than making isolated and arbitrary changes which consist of simple substitutions of near equivalents without regard to the basic units of the metric system.

*Tubeless tire resistance to bead unseating.* The NHTSA proposed that the force levels which must be sustained by conventional tubeless tires without bead unseating should be modified appropriately for the 60-psi tire because of its uncharacteristic section width. No objection was made to the proposed performance values and they are made final without change. The RMA noted that its earlier recommendations for test fixture modification should be implemented in two minor respects based on further testing of the new tire type. One dimension of the test fixture should have been three-tenths-of-an-inch longer than proposed, and the cross section of the bead unseating block should have been narrower to avoid contact with the rim on which the tested tire is mounted. The agency considers these minor modifications from the proposed values to fall within the scope of the proposal and adopts the changes in the final rule.

## TIRE LABELING

The NHTSA proposed that the metric-unit inflation pressure and load rating on metric-series tires be supplemented by English-system equivalents on the tire sidewall. Unlike the confusing listing of near-equivalent values in a performance standard, the use of equivalent markings on the tire sidewall can be of substantial benefit to the user without introducing confusion. No commenter objected to the proposed supplementary markings, and they are made final as proposed. General Motors suggested that "rounding" conventions be established to further assist the consumer. The agency does not wish to restrict the tire manufacturer's latitude in this area, and declines to adopt this suggestion in the absence of a demonstrable safety problem.

The agency proposed that the legend "Inflate to 60 psi" appear on the sidewall of the new 60-psi tire to make clear its distinctive inflation

requirement. The RMA suggested that the proposed limits on location of the legend should be somewhat relaxed in view of the comparatively small size of the 60-psi sidewall. The agency agrees that some relaxation of the requirement is justified. As made final, location of the legend is limited to the area between the tire shoulder and the head of the tire.

#### OTHER CONSIDERATIONS

The agency specifically addressed the possibility that consumers would have difficulty with the unconventional characteristics of the 60-psi tire, and that some safety problems could result from the confusion. The only problem raised by the agency that was responded to by commenters was the issue of storage of a large conventional tire after replacement by the smaller 60-psi tire, assuming that the car's trunk were full. Commenters minimized the extent of the problem, and Firestone noted that a majority of tires fail when the vehicle has been parked for a significant period of time, not on the highway.

In consideration of the foregoing, Standard No. 109 (49 CFR 571.109) is amended. . . .

*Effective date finding:* Because the amendments relieve a restriction and do not create additional requirements for any person, and because of vehicle manufacturers' need to settle on allowable tire designs as soon as possible, an immediate effective date is found to be in the public interest.

(Sec. 103, 112, 114, 119, 201, 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1403, 1407, 1421, 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on March 1, 1977.

John W. Snow  
Administrator

**42 F.R. 12869**  
**March 7, 1977**

**PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires—Passenger Cars****(Docket No. 74-25; Notice 6)**

This amendment clarifies the applicability of the Figure 2A bead unseating block and corrects typographical errors in Figure 2A. This amendment is made pursuant to a request from the Rubber Manufacturers Association (RMA).

Effective Date: March 23, 1978.

**For Further Information Contact:**

John A. Diehl, Crash Avoidance Division,  
Office of Vehicle Safety Standards, National  
Highway Traffic Safety Administration, 400  
Seventh Street, S.W., Washington, D.C.  
20590 (202-426-1715).

**Supplementary Information:** The Rubber Manufacturers Association (RMA) has petitioned the National Highway Traffic Safety Administration (NHTSA) to amend the language of S5.2.1.3 of Federal Motor Vehicle Safety Standard (FMVSS) 109 to clarify that only a Figure 2A bead unseating block is to be used in testing tires having an inflation pressure of 60 psi. The current language has created uncertainty as to whether only the Figure 2A block must be used, or whether both the Figure 2 and Figure 2A blocks must be used, depending on the type of tire being tested. In addition, the RMA requested the correction of several typographical errors in Figure 2A.

The NHTSA agrees that the current language is ambiguous and that Figure 2A contains inaccuracies. The NHTSA therefore finds both RMA requests to be reasonable, and they are granted.

As this amendment is interpretative in nature and reflects current understanding and practice, it is found for good cause that notice and public procedure thereon are unnecessary, and that an immediate effective date is in the public interest.

The principal authors of this document are John A. Diehl, Crash Avoidance Division, and Robert M. Churella, Office of Chief Counsel.

Accordingly, paragraph S5.2.1.3 of 49 CFR § 571.109 is amended. . . .

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegation of authority at 49 CFR 1.50.

Issued on March 17, 1978.

Joan Claybrook  
Administrator

**43 F.R. 12015  
March 23, 1978**



## **PREAMBLE TO AN AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109**

### **New Pneumatic Tires for Passenger Cars**

**(Docket No. 80-01; Notice 1)**

**ACTION:** Final rule.

**SUMMARY:** Pursuant to petitions by the Rubber Manufacturers Association (RMA) and the Michelin Tire Corporation (Michelin), this notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding certain tire size designations to Appendix A of that standard. This amendment permits the introduction into interstate commerce of the new tire sizes.

**EFFECTIVE DATE:** 30 days from the date of publication in the Federal Register, if objections are not received before that date. March 20, 1980.

**ADDRESSES:** Comments should refer to Docket No. 80-01 and be submitted to Docket Section, Room 5108, 400 Seventh Street, S.W., Washington, D.C. 20590. (Docket hours 8 a.m. to 4 p.m.)

**FOR FURTHER INFORMATION CONTACT:**

John Diehl, Office of Automotive Ratings,  
National Highway Traffic Safety Administration,  
400 Seventh Street, S.W., Washington, D.C.  
20950 (202-426-1714).

**SUPPLEMENTARY INFORMATION:**

According to agency practice, the National Highway Traffic Safety Administration (NHTSA) responds to petitions for adding new tire sizes to Table I of Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rulemaking procedure for expediting such routine amendments. Guidelines for this procedure were published at 33 FR 14964; October 5, 1968, and amended at 36 FR 8298; May 4, 1971; 36 FR 13601; July 22, 1971; and 39 FR 28980; August 13, 1974. These guidelines provide that these final rules become effective 30 days after their date of publication if no comments objecting to them are received

by NHTSA during this 30 day period. If objections are received, regular rulemaking procedures for issuing and amending motor vehicle safety standards are initiated.

On November 27, 1979, RMA petitioned for the addition of a new tire size to an existing table within Table I of Appendix A of Standard No. 109. RMA also petitioned on December 4, for the addition of three other tire sizes to existing tables in Table I. Further, RMA petitioned on December 4, for the addition of a new table to Table I, and requested that this new table list two tire sizes. Michelin petitioned for the addition of two new tires sizes to an existing table on November 7, 1979. On November 26, Michelin petitioned for the establishment of a new table to Table I, and that this table include a new tire size. The bases for accepting or denying requests to add new tire size designations are set forth in the introductory guidelines to Appendix A. Briefly, the tests are the appropriateness of the information submitted for inclusion in the tire tables, and the appropriateness of the requested location within the tables of the requested tire sizes. The eight new tire size designations requested to be added to Standard No. 109 appear to meet these criteria. Accordingly, the RMA and Michelin petitions are granted, and eight new tire sizes are added to Table I of Appendix A of the Standard pursuant to the abbreviated rulemaking procedure.

In consideration of the foregoing, 49 CFR § 571.109 is amended as specified below, subject to the 30 day comment period outlined above:

§ 571.109 *New Pneumatic Tires—Passenger Cars*  
(Appendix amended)

1. Tables I-KK, I-RR, and I-WW are amended by adding the following new tire size designations and corresponding values:

**TABLE I-KK**  
**TIRE LOAD RATING, TEST RIMS, MINIMUM SIZE FACTORS AND SECTION WIDTHS FOR "P/60" SERIES ISO TYPE TIRES**

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)									Test rim width (inches)	Minimum size factor (mm)	Section <sup>2</sup> width (mm)
	120	140	160	180	200	220	240	260	280			
P265/60 R 15 -----	645	695	745	790	835	875	915	950	985	7	943	262

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

**TABLE I-RR**  
**TIRE LOAD RATING, TEST RIMS, MINIMUM SIZE FACTORS AND SECTION WIDTHS FOR "P/65" SERIES ISO TYPE TIRES**  
**ALL MILLIMETRIC FOR TR OR JM RIMS**

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa) <sup>1</sup>									Test rim width (mm)	Minimum size factor (mm)	Section <sup>3</sup> width (mm)
	120	140	160	180	200	220	240	260	280			
P195/65 R 365 -----	400	430	460	490	515	540	565			135	800	194
P225/65 R 39 -----	535	575	615	655	690	720	755			165	894	228

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

<sup>3</sup> The letter "D" for diagonal and "B" for bias-belted may be used in place of the "R".

**TABLE I-WW**  
**TIRE LOAD RATING, TEST RIMS, MINIMUM SIZE FACTORS AND SECTION WIDTHS FOR "P/65" SERIES ISO TYPE TIRES**

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)									Test rim width (mm)	Minimum size factor (mm)	Section <sup>2</sup> width (mm)
	120	140	160	180	200	220	240	260	280			
P195/65 R 13 -----	375	400	430	455	480	505	525	550	570	5½	767	196
P205/65 R 14 -----	425	460	495	525	550	580	605	630	655	5½	811	203
P255/65 R 15 -----	650	705	750	795	840	880	920	960	995	7	950	255

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

2. Two new tables, Table I-XX and I-YY, are added to Table I of Appendix A to read as set forth below:

**TABLE I-XX**  
**TIRE LOAD RATING, TEST RIMS, MINIMUM SIZE FACTORS AND SECTION WIDTHS FOR "P/70" SERIES ISO TYPE TIRES**  
**ALL MILLIMETRIC FOR TR OR JM RIMS**

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)									Test rim width (mm)	Minimum size factor (mm)	Section <sup>2</sup> width (mm)
	120	140	160	180	200	220	240	260	280			
P165/70 R 365 -----	325	350	375	395	420	440	460			120	752	167

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

<sup>3</sup> The letter "D" for diagonal and "B" for bias-belted may be used in place of the "R".

**TABLE I-YY**  
**TIRE LOAD RATING, TEST RIMS, MINIMUM SIZE FACTORS AND SECTION WIDTHS FOR "P/55" SERIES ISO TYPE TIRES**

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)									Test rim width (inches)	Minimum size factor (mm)	Section <sup>2</sup> width (mm)
	120	140	160	180	200	220	240	260	280			
P255/55 R 14 -----	535	575	615	655	690	725	755	785	815	7	875	255
P255/55 R 15 -----	560	605	645	685	720	755	790	825	855	7	900	255

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

Interested persons are invited to submit comments on these additions. Comments must be limited so as not to exceed 15 pages in length. Necessary attachments may be appended without regard to the 15 page limit. This limitation is intended to encourage commenters to detail their primary comments in a concise fashion. Those persons desiring to be notified upon receipt of their comments in the rules docket should enclose a self-addressed, stamped postcard in the envelope with their comments. Upon receiving the comments, the docket supervisor will return the postcard by mail.

The agency has reviewed the impacts of this rule, and determined that permitting the introduction of these tire sizes will benefit those manufacturers desiring to produce the sizes and will have no effect on those manufacturers who do not. The public will

be minimally affected by this rule. Accordingly, NHTSA has determined that this is not a significant regulation within the meaning of Executive Order 12044.

The program official and attorney principally responsible for the development of this rule are John Diehl and Stephen Kratzke, respectively.

Issued on February 11, 1980.

Michael M. Finkelstein  
Associate Administrator  
for Rulemaking

**45 F.R. 10798**  
**February 19, 1980**





# PREAMBLE TO AN AMENDMENT TO FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

(Docket No. 80-01; Notice 3)

**ACTION:** Final rule.

**SUMMARY:** Pursuant to petitions by the Japan Automobile Tire Manufacturers Association (JATMA), Michelin Tire Corporation (Michelin), and the Rubber Manufacturers Association (RMA), this notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding certain tire size designations to Appendix A of that standard. This notice also corrects some dimensions for a tire size in which RMA calculated those dimensions using the wrong test rim width. This amendment permits the introduction into interstate commerce of the new tire sizes.

**EFFECTIVE DATE:** 30 days from the date of publication in the *Federal Register*, if objections are not received before that date.

**ADDRESS:** Comments should refer to Docket No. 80-01 and be submitted to Docket Section, Room 5108, 400 Seventh Street, S.W., Washington, D.C. 20590. (Docket hours are 8 a.m. to 4 p.m. Monday through Friday.)

**FOR FURTHER INFORMATION CONTACT:**

Office of Automotive Ratings, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-0852).

**SUPPLEMENTARY INFORMATION:** According to agency practice, the National Highway Traffic Safety Administration (NHTSA) responds to petitions for adding new tire sizes to Table I of Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rulemaking procedure for expediting such routine amendments. Guidelines for this procedure were published at 33

FR 14964; October 5, 1968, and amended at 36 FR 8298; May 4, 1971; 36 FR 13601; July 22, 1971; and 39 FR 28990; August 13, 1974. Those guidelines provide that these final rules become effective 30 days after their date of publication in the *Federal Register* if no comments objecting to them are received by NHTSA during this 30-day period. If objections are received, regular rulemaking procedures for issuing and amending motor vehicle safety standards are initiated.

On May 19, 1980, JATMA petitioned for the addition of a tire size to an existing table within Table I of Appendix A of Standard No. 109. On June 25, 1980, Michelin petitioned for the addition of two new tire sizes to an existing table. RMA petitioned for the addition of four new tire sizes to existing tables on May 27, June 6, July 10, and July 14. Additionally, RMA filed a petition requesting changes to the physical dimensions published for a tire size, because RMA had erroneously calculated those dimensions using the wrong test rim width.

The bases for accepting or denying requests to add new tire size designations to the tire tables are set forth in the introductory guidelines to Appendix A. Briefly, the tests are the appropriateness of the information submitted for inclusion in the tire tables and the appropriateness of the location within the tables of the requested tire size. The seven new tire size designations requested to be added to Standard No. 109 appear to meet these criteria. Accordingly, the JATMA, Michelin, and RMA petitions are granted, and seven new tire sizes are added to Table I of Appendix A of the Standard pursuant to the abbreviated rulemaking procedures. Additionally, the RMA request to correct the physical dimensions for a previously published tire size is granted, and the correction is made.

In consideration of the foregoing, 49 CFR § 571.109 is amended as specified below, subject to the 30-day comment period outlined above.

**§ 571.109 New Pneumatic Tires—Passenger Cars**  
(Appendix amended)

1. Tables I-K, I-T, I-KK, I-QQ, and I-WW are amended by adding the following new tire size designations and corresponding values:

2. Table I-LL is amended, with the following values substituted for the T155/D9016 tire size:

TABLE I-LL  
TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR  
"T-SERIES" 60 LB IN<sup>2</sup> TIRES

Tire size designation	Maximum tire loads upwards at 60 p.s.i. or 60 inflation pressure	Test rim width (inches)	Minimum size factor (inches)	Section width (inches)
T155 D9016	60 p.s.i. 2,335 lbs.	4	32.48	5.98

Interested persons are invited to submit comments on these additions. Comments must be limited so as not to exceed 15 pages in length. Necessary attachments may be appended without regard to the 15 page limit. This limitation is intended to encourage commenters to detail their primary arguments in a concise fashion. Those persons desiring to be notified upon receipt of their comments in the rules docket should enclose a self-addressed, stamped postcard in the envelope with their comments. When the comments are received, the docket supervisor will return the post card by mail.

The agency has reviewed the impacts of this rule and determined that permitting the introduction of

these tire sizes will benefit those manufacturers desiring to produce these sizes, and will have no effect on those manufacturers who do not. The public will be minimally affected by this rule. Accordingly, NHTSA has determined that this is not a significant regulation within the meaning of Executive Order 12044.

Issued on September 8, 1980.

Michael M. Finkelstein  
Associate Administrator

**45 F.R. 62083**  
**September 18, 1980**

## MOTOR VEHICLE SAFETY STANDARD NO. 109

### New Pneumatic Tires—Passenger Cars

**S1. Scope.** This standard specifies tire dimensions and laboratory test requirements for bead unseating resistance, strength, endurance, and high-speed performance; defines tire load ratings; and specifies labeling requirements for passenger car tires.

**S2. Application.** This standard applies to new pneumatic tires for use on passenger cars manufactured after 1948. However, it does not apply to any tire which has been altered so as to render impossible its use, or its repair for use, as motor vehicle equipment.

#### S3. Definitions.

“Bead” means that part of the tire made of steel wires, wrapped or reinforced by ply cords, that is shaped to fit the rim.

“Bead separation” means a breakdown of bond between components in the bead area.

“Bias ply tire” means a pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90° to the centerline of the tread.

“Carcass” means the tire structure, except tread and sidewall rubber.

“Chunking” means the breaking away of pieces of the tread or sidewall.

“Cord” means the strands forming the plies in the tire.

“Cord separation” means cord parting away from adjacent rubber compounds.

“Cracking” means any parting within the tread, sidewall, or innerliner of the tire extending to cord material.

“Groove” means the space between two adjacent tread ribs.

“Innerliner” means the layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire.

“Innerliner separation” means the parting of the innerliner from cord material in the carcass.

“Load rating” means the maximum load a tire is rated to carry for a given inflation pressure.

“Maximum permissible inflation pressure” means the maximum cold inflation pressure to which a tire may be inflated.

“Maximum load rating” means the load rating at the maximum permissible inflation pressure for that tire.

“Open splice” means any parting at any junction of tread, sidewalls, or innerliner that extends to cord material.

“Overall width” means the linear distance between the exteriors of the sidewalls of an inflated tire, including elevations due to labeling, decorations, or protective bands or ribs.

“Ply” means a layer of rubber-coated parallel cords.

“Ply separation” means a parting of rubber compound between adjacent plies.

“Pneumatic tire” means a mechanical device made of rubber, chemicals, fabric and steel or other materials, which, when mounted on an automotive wheel, provides the traction and contains the gas or fluid that sustains the load.

“Radial ply tire” means a pneumatic tire in which the ply cords which extend to the beads are laid at substantially 90° to the centerline of the tread.

“Rim” means a metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

“Section width” means the linear distance between the exteriors of the sidewalls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands.

“Sidewall” means that portion of a tire between the tread and the bead.

"Sidewall separation" means the parting of the rubber compound from the cord material in the sidewall.

"Size factor" means the sum of the section width and the outer diameter of a tire determined on the test rim.

"Test rim" means, with reference to a tire to be tested, any rim that is listed as appropriate for use with that tire in accordance with S4.4. For purposes of this section and § 571.110 of this chapter, each rim listing shall include dimensional specifications and a diagram of the rim.

"Tread" means that portion of a tire that comes into contact with the road.

"Tread rib" means a tread section running circumferentially around a tire.

"Tread separation" means pulling away of the tread from the tire carcass.

#### **S4. Requirements.**

**S4.1 Size and Construction.** Each tire shall be designed to fit each rim specified for its size designation in each reference cited in the definition of "test rim" in S.3.

#### **S4.2 Performance requirements.**

**S4.2.1 General.** Each tire shall conform to each of the following:

(a) It shall meet the requirements specified in S4.2.2 for its tire size designation, type, and maximum permissible inflation pressure.

(b) Its maximum permissible inflation pressure shall be either 32, 36, 40, or 60 psi, or 240, 280, or 300 kPa.

(c) Its load rating shall be that specified in Table I for its size designation, type, and each appropriate inflation pressure.

(d) If manufactured on or after August 1, 1968, it shall incorporate a tread wear indicator that will provide a visual indication that the tire has worn to a tread depth of  $\frac{1}{16}$  inch.

(e) It shall, before being subjected to either the endurance test procedure specified in S5.4 or the high-speed performance test procedure specified in S5.5, exhibit no visual evidence of tread, sidewall, ply, cord, innerliner, or bead separation, chunking, broken cords, cracking or open splices.

(f) It shall meet the requirements of S4.2.2.5 and S4.2.2.6 when tested on a test wheel described in S5.4.2.1 either alone or simultaneously with up to 5 other tires.

#### **S4.2.2 Test requirements.**

**S4.2.2.1 Test sample.** For each test sample use—

(a) One tire for physical dimensions, resistance to bead unseating, and strength, in sequence;

(b) Another tire for tire endurance; and

(c) A third tire for high-speed performance.

**S4.2.2.2 Physical Dimensions.** Each tire, when measured in accordance with S5.1, shall conform to each of the following:

(a) Its actual section width and overall width shall not exceed the section width specified in Table I for its size designation and type by more than:

(1) (for tires with a maximum permissible inflation pressure of 32, 36, or 40 psi) 7 percent, or

(2) (For tires with a maximum permissible inflation pressure of 60 psi or 240, 280, or 300 kPa) 7 percent or 0.4 inches, whichever is larger; and

(b) Its size factor shall be at least as large as that specified in Table I for its size designation and type.

#### **S4.2.2.3 Tubeless tire resistance to bead unseating.**

**S4.2.2.3.1** When a tubeless tire that has a maximum inflation pressure other than 60 psi is tested in accordance with S5.2, the applied force required to unseat the tire bead at the point of contact shall be not less than:

(a) 1500 pounds for tires with a designated section width of less than six (6) inches;

(b) 2000 pounds for tires with a designated section width of six (6) inches or more, but less than eight (8) inches;

(c) 2500 pounds for tires with a designated section width of eight (8) inches or more, using the section width specified in Table I for the applicable tire size designation and type.

**S4.2.2.3.2** When a tire that has a maximum inflation pressure of 60 psi is tested in accordance with S5.2, the applied force required to unseat the tire bead at the point of contact shall be not less than:

(a) 1500 pounds for tires with a maximum load rating of less than 880 pounds;

(b) 2000 pounds for tires with a maximum load rating of 880 pounds or more but less than 1400 pounds;

(c) 2500 pounds for tires with a maximum load rating of 1400 pounds or more, using the maximum load ratings specified in Table I for the applicable tire size designation and type.

**S4.2.2.4 Tire strength.** Each tire shall meet the requirements for minimum breaking energy specified in Table II when tested in accordance with S5.3.

**S4.2.2.5 Tire endurance.** When the tire has been subjected to the laboratory endurance test specified in S5.4, using a test rim that undergoes no permanent deformation and allows no loss of air through the portion that it comprises of the tire-rim pressure chamber:

(a) There shall be no visual evidence of tread, sidewall, ply, cord, innerliner, or bead separation, chunking, broken cords, cracking, or open splices.

(b) The tire pressure at the end of the test shall be not less than the initial pressure specified in S5.4.1.1.

**S4.2.2.6 High-speed performance.** When the tire has been subjected to the laboratory high-speed performance test specified in S5.5, using a test rim that undergoes no permanent deformation and allows no loss of air through the portion that it comprises of the tire-rim pressure chamber, the tire shall meet the requirements set forth in S4.2.2.5(a) and (b).

**S4.3 Labeling requirements.** Except as provided in S4.3.1 and S4.3.2 each tire shall have permanently molded into or onto both sidewalls, in letters and numerals not less than 0.078 inches high, the information shown below in (a) through (g). On at least one sidewall, the information shall be positioned in an area between the maximum section width and bead of the tire. However, in no case shall the information be

positioned on the tire so that it is obstructed by the flange of any rim designated for use with that tire in Standard Nos. 109 and 110 (571.109 and 571.110 of this part).

(a) One size designation, except that equivalent inch and metric size designations may be used;

(b) Maximum permissible inflation pressure;

(c) Maximum load rating;

(d) The generic name of each cord material used in the plies (both sidewall and tread area) of the tire;

(e) Actual number of plies in the sidewall, and the actual number of plies in the tread area if different;

(f) The words "tubeless" or "tube type" as applicable; and

(g) The word "radial" if the tire is a radial ply tire.

**S4.3.1** Each tire shall be labeled with the symbol DOT in the manner specified in Part 574 of this chapter, which shall constitute a certification that the tire conforms to applicable Federal motor vehicle safety standards.

**S4.3.2** Each tire shall be labeled with the name of the manufacturer, or brand name and number assigned to the manufacturer in the manner specified in Part 574.

**S4.3.3** Each tire manufactured between March 1, 1971, and May 22, 1971, shall either—

(a) Comply with S4.3(d)(2) and S4.3(i) (as effective until May 22, 1971); or

(b) Be labeled with the tire identification number required by Part 574.5 of this chapter and comply with S4.3.1 and S4.3.2 (as effective on and after May 22, 1971).

**S4.3.4** If the maximum inflation pressure of a tire is 240, 280, or 300 kPa then:

(a) Each marking of that inflation pressure pursuant to S4.3(b) shall be followed in parenthesis by the equivalent inflation pressure in psi, rounded to the next higher whole number; and

(b) Each marking of the tire's maximum load rating pursuant to S4.3(e) in kilograms shall be followed in parentheses by the equivalent load rating in pounds, rounded to the nearest whole number.

**S4.3.5** If the maximum inflation pressure of a tire is 60 psi, the tire shall have permanently molded into or onto both sidewalls, in letters and numerals not less than 1/2 inch high, the words "Inflate to 60 psi." On both sidewalls, the words shall be positioned in an area between the tire shoulder and the bead of the tire. However, in no case shall the words be positioned on the tire so that they are obstructed by the flange of any rim designated for use with that tire in this standard or in Standard No. 110 (§ 571.110 of this part).

#### **S4.4 Tire and rim matching information.**

**S4.4.1** Each manufacturer of tires shall ensure that a listing of the rims that may be used with each tire that he produces is provided to the public. A listing compiled in accordance with paragraph (a) of this section need not include dimensional specifications or diagram of a rim if the rim's dimensional specifications and diagram are contained in each listing published in accordance with paragraph (b). The listing shall be in one of the following forms:

(a) Listed by manufacturer name or brand name in a document furnished to dealers of the manufacturer's tires, to any person upon request, and in duplicate to: Tire Division, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590; or

(b) Contained in publications, current at the date of manufacture of the tire or any later date, of at least one of the following organizations:

The Tire and Rim Association.  
The European Tyre and Rim Technical Organisation.  
Japanese Industrial Standards.  
Deutsches Institut für Normung  
The Society of Motor Manufacturers & Traders, Ltd.  
British Standards Institution  
Scandinavian Tire and Rim Organisation.

**S4.4.2** Information contained in any publication specified in S4.4.1(b) which lists general categories of tires and rims by size designation, type of construction and/or intended use, shall be considered to be manufacturer's information pursuant to S4.4.1 for the listed tires and rims,

unless the publication itself or specific information provided according to S4.4.1(a) indicates otherwise.

#### **S5. Test procedures.**

**S5.1 Physical Dimensions.** Determine tire physical dimensions under uniform ambient conditions as follows:

(a) Mount the tire on a test rim having the test rim width specified in Appendix A of this section for that tire size designation and inflate it to the applicable pressure specified in Table III.

(b) Condition it at ambient room temperature for at least 24 hours.

(c) Readjust pressure to that specified in (a).

(d) Caliper the section width and overall width at six points approximately equally spaced around the tire circumference.

(e) Record the average of these measurements as the section width and overall width, respectively.

(f) Determine tire outer diameter by measuring the maximum circumference of the tire and dividing this dimension by pi (3.14).

#### **S5.2 Tubeless tire bead unseating resistance.**

##### **S5.2.1 Preparation of tire-wheel assembly.**

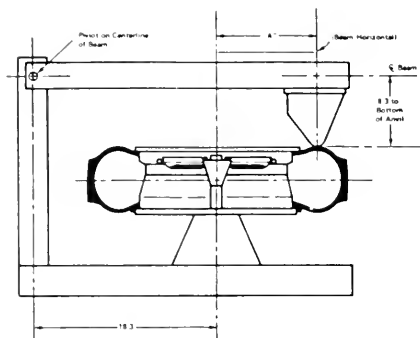
**S5.2.1.1** Wash the tire, dry it at the beads, and mount it without lubrication or adhesives on a clean, painted test rim.

**S5.2.1.2** Inflate it to the applicable pressure specified in Table III at ambient room temperature.

**S5.2.1.3** Mount the wheel and tire in the fixture shown in Figure 1, and force the bead unseating block shown in Figure 2 or Figure 2A against the tire sidewall as required by the geometry of the fixture. However, in testing a tire that has an inflation pressure of 60 psi, only use the bead unseating block described in Figure 2A.

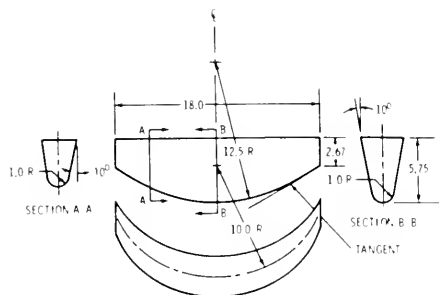
##### **S5.2.2 Test procedure.**

**S5.2.2.1** Apply a load through the block to the tire outer sidewall at the distance specified in Figure 1 for the applicable wheel size at a rate of 2 inches per minute, with the load arm substantially parallel to the tire and rim assembly at the time of engagement.



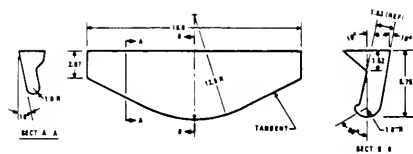
Width of Steel Trough	Dimension "A" for tires with maximum inflation pressure	
	60 lb/in	Other than 60 lb/in
17	12.0"	—
16	11.5"	9.9"
15	11.0"	9.4"
14	10.5"	8.9"
13	10.0"	—
12	9.5"	—
11	9.0"	—
10	8.5"	—
390 mm	11.0"	—

Figure 1—Bead Unseating Fixture—Dimensions in Inches



MATERIAL: Cast Aluminum 355  
T & Condition  
Finish: 50 Micro Inch

FIGURE 2—Diagram of Bead Unseating Block Dimensions in Inches



MATERIAL: CAST ALUMINUM 360  
T & CONDITION  
FINISH: 50 MICRO INCH

FIGURE 2A — DIAGRAM OF BEAD UNSEATING BLOCK DIMENSIONS IN INCHES

**S5.2.2.2** Increase the load until the bead unseats or the applicable value specified in S4.2.2.3 is reached.

**S5.2.2.3** Repeat the test at least four places equally spaced around the tire circumference.

### S5.3 Tire strength.

#### S5.3.1 Preparation of tire.

**S5.3.1.1** Mount the tire on a test rim and inflate it to the applicable pressure specified in Table III;

**S5.3.1.2** Condition it at room temperature for at least 3 hours; and

**S5.3.1.3** Readjust its pressure to that specified in S5.3.1.1.

#### S5.3.2 Test procedure.

**S5.3.2.1** Force a 1/4-inch-diameter cylindrical steel plunger with a hemispherical end perpendicularly into the tread rib as near to the center-

line as possible, avoiding penetration into the tread groove, at the rate of 2 inches per minute.

**S5.3.2.2** Record the force and penetration at five test points equally spaced around the circumference of the tire. If the tire fails to break before the plunger is stopped by reaching the rim, record the force and penetration as the rim is reached and use these values in S5.3.2.3.

**S5.3.2.3** Compute the breaking energy for each test point by means of the following formula:

$$W = \frac{F \times P}{2}$$

where

W = Energy, inch-pounds;

F = Force, pounds; and

P = Penetration, inches.

**S5.3.2.4** Determine the breaking energy value for the tire by computing the average of the five values obtained in accordance with S5.3.2.3.

#### S5.4 Tire endurance.

##### S5.4.1 Preparation of tire.

**S5.4.1.1** Mount a new tire on a test rim and inflate it to the applicable pressure specified in Table III.

**S5.4.1.2** Condition the tire assembly to  $100 \pm 5^\circ\text{F}$ . for at least three hours.

**S5.4.1.3** Readjust tire pressure to that specified in S5.4.1.1 immediately before testing.

##### S5.4.2 Test procedure.

**S5.4.2.1** Mount the tire and wheel assembly on a test axle and press it against a flat-faced steel test wheel 67.23 inches in diameter and at least as wide as the section width of the tire to be tested or an approved equivalent test wheel, with the applicable test load specified in the table in S5.4.2.3 for the tire's size designation, type, and maximum permissible inflation pressure.

**S5.4.2.2** During the test, the air surrounding the test area shall be  $100 \pm 5^\circ\text{F}$ .

**S5.4.2.3** Conduct the test at 50 miles per hour in accordance with the following schedule without pressure adjustment or other interruptions:

Maximum permissible inflation pressure	Loads for—		
	4 hours	6 hours	24 hours
	<i>Loads from Table I (listed in specified psi or kPa column)</i>		
32 psi	24	28	32
36 psi	28	32	36
40 psi	32	36	40
240 kPa	180	220	240
280 kPa	220	260	280
300 kPa	180	220	240
	<i>Load as specified percentage of maximum load rating marked on tire sidewall</i>		
60 psi	85	92	100

**S5.4.2.4** Immediately after running the tire the required time, measure its inflation pressure. Allow the tire to cool for one hour. Then deflate the tire, remove it from the test rim, and inspect it for the conditions specified in S4.2.2.5(a).

#### S5.5 High-speed performance.

**S5.5.1** After preparing the tire in accordance with S5.4.1, mount the tire and wheel assembly in accordance with S5.4.2.1, and press it against the test wheel with the load indicated in the following table:

A Maximum permissible inflation pressure	B Load from Table I
32 psi	24 psi col.
36 psi	28 psi col.
40 psi	32 psi col.
240 kPa	180 kPa col.
280 kPa	220 kPa col.
300 kPa	180 kPa col.
	<i>Load as specified percentage of maximum load rating marked on tire sidewall</i>
60 psi	85

**S5.5.2** Break in the tire by running it for 2 hours at 50 mph.

**S5.5.3** Allow it to cool to  $100 \pm 5^\circ\text{F}$  and re-adjust the inflation pressure to the applicable pressure specified in Table III.



**S5.5.4** Without readjusting inflation pressure, test at 75 mph for 30 minutes, 80 mph for 30 minutes, and 85 mph for 30 minutes.

**S5.5.5** Immediately after running the tire the required time, measure its inflation pressure. Allow the tire to cool for one hour. Then deflate the tire, remove it from the test rim, and inspect it for the conditions specified in S4.2.2.5(a).

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**SS6. Nonconforming tires.** No tire of a type and size designation specified in Table I of Appendix A that is designed for use on passenger cars and manufactured on or after October 1, 1972, but does not conform to all the requirements of this standard, shall be sold, offered for sale, introduced or delivered for introduction in interstate commerce, or imported into the United States for any purpose.



## APPENDIX A

GUIDELINES FOR ABBREVIATED RULEMAKING PROCEDURE FOR ADDING TIRE SIZES  
TO STANDARD NO. 109

Tables I-A through I-J of Standard No. 109, as amended (33 F.R. 5946-5949) are deleted and in their places the following is inserted:

The following tables list tire sizes and tire constructions with proper load and inflation values. The tables group tires of related construction and load/inflation values. Persons requesting the addition of new tire sizes to the tables or the addition of tables for new tire construction may, when the additions requested are compatible with existent groupings, or when adequate justification for new tables exists, submit five (5) copies of information and data supporting the request to the Secretary of Transportation, Attention: Motor Vehicle Programs, National Highway Traffic Safety Administration, U.S. Department of Transportation, Washington, D.C. 20590.

The information should contain but not be limited to the following:

(1) The tire size designation and whether the tire is an addition to a category of tires listed in the tables, or a new category for which a table has not been developed.

(2) The tire dimensions, including aspect ratio, size factor, section width, overall width and test rim size.

(3) The load-inflation schedule of the tire.

(4) A statement as to whether the tire size designation and load inflation schedule has been

coordinated with an organization such as The Tire and Rim Association, The European Tyre and Rim Technical Organization, The Society of Manufacturers and Traders Limited and the Japan Automobile Tire Manufacturers Association, whose purpose is to standardize tire and rim sizes.

(5) Copies of test data sheets showing test conditions, results and conclusions obtained for individual tests specified in FMVSS No. 109.

(6) Justification for the additional tire sizes.

The addition of new size tires to the tables, or the addition of tables for new tire construction, is accomplished through an abbreviated procedure consisting of the publication in the *Federal Register* of the petitioned tire sizes or tables. If no comments are received, the amendment becomes effective after 30 days from the date of publication. If comments objecting to amendment are received, additional rule making pursuant to Part 353 of the Procedural Rules for Motor Vehicle Safety Standards will be considered.

Amendments to Appendix A of Standard No. 109 may be issued by the Director of Motor Vehicle Programs, National Highway Traffic Safety Administration.

33 F.R. 14964  
October 5, 1968



# **PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109**

(Docket No. 69-30; Notice No. 1)

On October 5, 1968, the Federal Highway Administration published guidelines in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A of Standard No. 109 and the Appendix A of Standard No. 110. These guidelines provided an abbreviated rule-making procedure for adding tire sizes to Standard No. 109 and alternative rim sizes to Standard No. 110, whereby the addition becomes effective 30 days from date of publication in the *Federal Register* if no objections to the proposed additions are received. If comments objecting to the amendment warrant, rule making pursuant to the rule making procedures for motor vehicle safety standards (49 CFR 353) will be followed.

The European Tyre and Rim Technical Organisation has petitioned for the addition of the new "Millimeter 70 Series" radial ply tires and the new "Low Section" radial ply tires to Table I of Appendix A of Standard No. 109 and the appropriate test and alternative rims to Table I of Appendix A of Standard No. 110. Also, the Toyota Motor Company, Ltd. has petitioned for the addition of the 5-K alternative rim size for the 165R15 tire size designation to Table I of Appendix A of Standard No. 110.

On the basis of the data submitted by the European Tyre and Rim Technical Organisation and the Toyota Motor Company, Ltd., indicating compliance with the requirements of Federal

Motor Vehicle Safety Standard No. 109 and No. 110 and other information submitted in accordance with the procedural guidelines set forth, Appendix A of Federal Motor Vehicle Safety Standard No. 109 is being amended and Table I of Appendix A of Standard No. 110 is being amended.

In consideration of the foregoing, Section 371.21 of Part 371 Federal Motor Vehicle Safety Standards, Appendix A of Standards No. 109 (33 F.R. 14964) and Appendix A of Standard No. 110 (34 F.R. 16102) are being amended as set forth below effective 30 days from date of publication in the *Federal Register*.

These amendments are issued under authority of Sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 USC 1392, 1407), and delegation from the Secretary of Transportation contained in § 1.4(c) of Part 1 of the Regulations of the Office of the Secretary (49 CFR 1.4(c)), and the delegation from the Federal Highway Administrator of October 5, 1968 (33 F.R. 14964).

H. M. Jacklin, Jr.  
Acting Director

Motor Vehicle Safety Performance Service

**34 F.R. 14376  
September 13, 1969**



**APPENDIX A—FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109**

The following tables list tire sizes and tire constructions with proper load and inflation values. The tables group tires of related constructions and load/inflation values. Persons requesting the addition of new tire sizes to the tables or the addition of tables for new tire constructions may, when the additions requested are compatible with existent groupings, or when adequate justification for new tables exists, submit five (5) copies of information and data supporting the request to the Secretary of Transportation, Attention: Motor Vehicle Programs, National Highway Traffic Safety Administration, U.S. Department of Transportation, Washington, D.C. 20590.

The information should contain the following:

1. The tire size designation, and a statement that the tire is an addition to a category for which a table has not been developed.
2. The tire dimensions, including aspect ratio, size factor, section width, overall width, and test rim size.
3. The load-inflation schedule of the tire.
4. A statement that the tire size designation and load inflation schedule has been coordinated

with the Tire and Rim Association, the European Tyre and Rim Technical Organisation, the Society of Manufacturers and Traders Limited, the Japan Automobile Tire Manufacturers Association, the Deutsche Industrie Norm and the Scandinavian Tire and Rim Organization.

5. Copies of test data sheets showing test conditions, results and conclusions obtained for individual tests specified in Federal Motor Vehicle Safety Standard No. 109.

6. Justification for the additional tire sizes.

The addition of new size tires to the tables, or the addition of tables for new tire construction, is accomplished through an abbreviated procedure consisting of publication in the *Federal Register* of the petitioned tire sizes or tables. If no comments are received, the amendment becomes effective 30 days from the date of publication. If objections to the amendment are received, additional rulemaking pursuant to Part 553 of the procedural rules for Motor Vehicle Safety Standards will be initiated.

**36 F.R. 8298  
May 4, 1971**





# **PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **New Pneumatic Tires—Passenger Cars**

**(Docket No. 71-9; Notice No. 1)**

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14969) by which routine additions of tire and rim sizes could be added to Appendix A of Standard No. 109 and to Appendix A of Standard No. 110. Under these guidelines, the addition becomes effective 30 days from the date of its publication in the *Federal Register*, if no objections to the proposed additions are received. If objections to the amendment are received, rulemaking pursuant to the procedures for motor vehicle safety standards (49 CFR Part 553) are followed. Numerous additions to Appendix A of Standard 109 and Appendix A of Standard 110 have been made under these procedures, and Appendix A of Standard No. 109 and Appendix A of Standard No. 110 are being reissued at this time to incorporate all the changes that have been made to these appendices since October 5, 1968.

At the top of each table in the appendices there is an amendment number that indicates the number of times the table has been amended since its original issue. Where feasible, a brief note below the table indicates the substance of the change being made. This procedure will be followed in future amendments to the tables.

In addition to republishing all previous additions to the tables, new tire size designations and alternative rims are hereby added to various tables. The European Tyre and Rim Technical Organisation has petitioned for the addition of 140 R 12 and 6.5-13 as tire size designations in Appendix A of Standard No. 109, and has requested that test and alternate rim(s) for these tires be added to Appendix A of Standard No. 110.

The European Tyre and Rim Technical Organisation has also petitioned for the addition of the following alternative rims to Table I—Appendix A of Standard No. 110.

Tire size designation:	Alternative rim
175-13/6.95-13 -----	5½-J.
6.2-13 -----	4½-J.
205 R 14 -----	7½-K.
205 R 15 -----	6½-L.

In addition to the above, the following errors in the tables have been brought to the National Highway Traffic Safety Administration's attention and are hereby corrected:

(a) Standard No. 109—Appendix A—Table I-B. The 26-pound inflation pressure maximum load for the A70-13 tire size designation is changed to read "940".

(b) Standard No. 110—Appendix A—Table I. The alternate rim "5½-J" of the 6.40-15 tire size in section Table I-C is corrected to read "5½-JJ".

In consideration of the foregoing, § 571.21 of Part 571, Federal Motor Vehicle Safety Standards, Appendix A of Standard No. 109 and Appendix A of Standard No. 110 are amended . . . effective 30 days from date of publication in the *Federal Register*.

Issued on April 16, 1971.

Rodolfo A. Diaz,  
Acting Associate Administrator,  
Motor Vehicle Programs

**36 F.R. 8298  
May 4, 1971**



# **PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **New Pneumatic Tires—Passenger Cars (Docket No. 71-12; Notice No. 1)**

This amendment adds certain tire sizes and alternative rim sizes to the passenger car tire standard and the tire selection and rim standard.

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A, Standard No. 109 and to Appendix A, Standard No. 110. Under these guidelines, the addition becomes effective 30 days from date of publication in the *Federal Register*, if no objections to the proposed additions are received. If objections to the amendment are received, rulemaking pursuant to the procedures for motor vehicle safety standards (49 CFR 553) are followed. All changes made to the appendices as of April 16, 1971 were reissued and incorporated into the tables and republished in the *Federal Register* of May 4, 1971 (36 F.R. 8298).

The Rubber Manufacturers Association has petitioned for the addition of the new AR78-13, CR78-13, D78-13, DR70-13, BR78-14, CR70-14, E60-14, H60-14, A78-15, AR78-15, and HR60-15 tire size designations to Table I, Appendix A of Standard No. 109 and the appropriate test and alternative rims to Table I, Appendix A of Standard No. 110.

The Rubber Manufacturers Association has also petitioned for the addition of the 6-JJ alternative rim size for the JR70-15 and LR70-15 tire size designations; the 8-JJ alternative rim size for the FR60-15 and GR60-15 tire size designations and the 4-JJ alternative rim size

for the 175R13 tire size designation to Table I, Appendix A of Standard No. 110.

The European Tyre and Rim Technical Organisation has petitioned for the addition of the 8½-L and 8-K alternative rims for the GP70-15 tire size designation to Table I, Appendix A of Standard No. 110.

The Ford Motor Company has petitioned for the addition of the 5½-JJ alternative rim size for the 175R13 tire size designation to Table I, Appendix A of Standard No. 110.

On the basis of the data submitted by the Rubber Manufacturers Association, the European Tyre and Rim Technical Organisation, and the Ford Motor Company indicating compliance with the requirements of Federal Motor Vehicle Safety Standards No. 109 and No. 110 and other information submitted in accordance with the procedural guidelines set forth, Table I, Appendix A of Standard No. 109 is being amended and Table I, Appendix A of Standard No. 110 is being amended.

In consideration of the foregoing, § 571.21 of Part 571 Federal Motor Vehicle Safety Standards, Appendix A of Standard No. 109 and Appendix A of Standard No. 110 are amended to read as set forth below, effective 30 days from date of publication in the *Federal Register*.

Issued on May 24, 1971.

Robert L. Carter  
Acting Associate Administrator  
Motor Vehicle Programs

**36 F.R. 10733  
June 2, 1971**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE  
SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 71-16; Notice No. 1)**

This amendment adds certain tire sizes and alternative rim size to the passenger car tire standard and the tire selection and rim standard.

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A, Standard No. 109 and to Appendix A, Standard No. 110. Under these guidelines, the addition becomes effective 30 days from date of publication in the *Federal Register*, if no objections to the proposed additions are received. If objections to the amendment are received, rule-making pursuant to the procedures for motor vehicle safety standards (49 CFR 553) are followed. All changes made to the appendices as of April 16, 1971 were reissued and incorporated into the tables and republished in the *Federal Register* of May 4, 1971 (36 F.R. 8298).

The European Tyre and Rim Technical Organisation has petitioned for the following:

(1) The addition of the new 205/70 R14, 215/70 R14, 225/70 R14, 195/70 R15, 205/70 R15, 215/70 R15, 225/70 R15, 150 R12, 150 R14 and 180 R15 tire size designations to Table I, Appendix A of Standard No. 109 and the appropriate test and alternative rims to Table I, Appendix A of Standard No. 110.

(2) The addition of the 5.50 B alternative rim for the 165 R13 tire size designation to Table I, Appendix A of Standard No. 110.

(3) The addition of the 16 psi and 18 psi loads to Table I-H, Appendix A of Standard No. 109.

The Rubber Manufacturers Association has petitioned for the addition of the 6-JJ alternative rim size for the DR 78-14 tire size designation to Table I, Appendix A of Standard No. 110.

On the basis of the data submitted by the European Tyre and Rim Technical Organisation and the Rubber Manufacturers Association indicating compliance with the requirements of Federal Motor Vehicle Safety Standards No. 109 and 110 and other information submitted in accordance with the procedural guidelines, § 571.21 of Part 571 Federal Motor Vehicle Safety Standards, Appendix A of Standard No. 109 and Appendix A of Standard No. 110 are amended to read as set forth below, effective 30 days from date of publication in the *Federal Register*.

In addition, Appendix A of Standard No. 109 is amended in order to make it clear that requests for additional tire sizes should specify whether the tire is an addition to a category of tires listed in the tables, or a new category for which a table has not been developed.

Issued on July 13, 1971.

Robert L. Carter  
Acting Associate Administrator  
Motor Vehicle Programs

**36 F.R. 13601  
July 22, 1971**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE  
SAFETY STANDARD NO. 109  
New Pneumatic Tires—Passenger Cars  
(Docket No. 71-17; Notice No. 1)**

This amendment adds certain tire sizes and alternative rim size to the passenger car tire standard and the tire selection and rim standard.

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A, Standard No. 109 and to Appendix A, Standard No. 110. Under these guidelines, the addition becomes effective 30 days from date of publication in the *Federal Register*, if no objections to the proposed additions are received. If objections to the amendment are received, rulemaking pursuant to the procedures for motor vehicle safety standards (49 CFR 553) are followed. All changes made to the appendices as of April 16, 1971 were reissued and incorporated into the tables and republished in the *Federal Register* on May 4, 1971 (36 F.R. 8298).

The European Tyre and Rim Technical Organisation has petitioned for the addition of the 7-K alternative rim size for the 185/70 R15 tire size designation and the 6-JJ alternative rim size for the 205/70 R14 tire size designation to Table I, Appendix A of Standard No. 110.

The Rubber Manufacturers Association has petitioned for the addition of the 6½-JJ alternative rim size for the G78-15 tire size designation to Table I, Appendix A of Standard No. 110.

The Rubber Manufacturers Association has petitioned to change the test rim from 7½-inch to 7-inch for the J60-14, J60-15 and L60-15 tire size designations currently listed within the Table I-K, Appendix A of Standard No. 109.

Also, the Rubber Manufacturers Association has petitioned to correct the section width and minimum size factor measurements for the GR60-15 tire size designation listed within Table I-R, Appendix A of Standard No. 109.

On the basis of the data submitted by the European Tyre and Rim Technical Organisation and the Rubber Manufacturers Association indicating compliance with the requirements of Federal Motor Vehicle Safety Standards No. 109 and 110 and other information submitted in accordance with the procedural guidelines, § 571.21 of Part 571 Federal Motor Vehicle Safety Standards, Appendix A of Standard No. 109 and Appendix A of Standard No. 110 are amended as set forth below, effective 30 days from date of publication in the *Federal Register*.

Issued on July 22, 1971.

Robert L. Carter  
Acting Associate Administrator  
Motor Vehicle Programs

36 F.R. 14134  
July 30, 1971





# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 109

## Pneumatic Tires—Passenger Cars

(Docket No. 71-20, Notice 1)

This amendment adds certain tire sizes and alternative rim sizes to the passenger car tire standard and tire selection rim standard.

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A, Standard No. 109 and to Appendix A, Standard No. 110. Under these guidelines, the addition becomes effective 30 days from date of publication in the *Federal Register*, if no objections to the proposed additions are received. If objections to the amendment are received, rulemaking pursuant to the procedures for motor vehicle safety standards (49 CFR Part 553) are followed.

The Rubber Manufacturers Association has petitioned for the following:

(1) The addition of the new GR60-14 tire size designation to Table I, Appendix A of Standard No. 109 and the appropriate test and alternative rims to Table I, Appendix A of Standard No. 110.

(2) The addition of the following alternative rims to Table I, Appendix A of Standard No. 110:

(a) The 9-JJ alternative rim size for the G60-15 tire size designations.

(b) The 5-JJ and 6-JJ alternative rim sizes for the FR78-14 tire size designation.

(c) The 8-JJ alternative rim size for the F70-14 tire size designation.

(d) The 5-JJ alternative rim size for the D70-14 tire size designation.

(e) The 7-JJ alternative rim size for the GR70-15 tire size designation.

(f) The 6½-JJ alternative rim size for the 8.25-15 tire size designation.

The European Tyre and Rim Technical Organisation has petitioned for the following:

(1) The addition of the new 230-15, 245/60 R14 and 255/60 R15 tire size designations to Table I, Appendix A of Standard No. 109 and the appropriate test and alternative rims to Table I, Appendix A of Standard No. 110.

(2) The addition of the following alternative rims to Table I, Appendix A of Standard No. 110:

(a) The 9-L alternative rim size for the HR60-15 tire size designation.

(b) The 8K and 8½-L alternative rim sizes for the 225/70 R15 tire size designation.

(c) The 5½-JJ alternative rim size for the 155 R13 tire size designation.

On the basis of the data submitted by the European Tyre and Rim Technical Organisation and the Rubber Manufacturers Association indicating compliance with the requirements of Federal Motor Vehicle Safety Standards No. 109 and No. 110 and other information submitted in accordance with the procedural guidelines, § 571.21 of Part 571 Federal Motor Vehicle Safety Standards, Appendix A of Standard No. 109 and Appendix A of Standard 110 are amended to read as set forth below, effective 30 days from date of publication in the *Federal Register*.

Issued on October 21, 1971.

Robert L. Carter  
Acting Associate Administrator  
Motor Vehicle Programs

36 F.R. 21355  
November 6, 1971



## PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109

## New Pneumatic Tires—Passenger Cars

(Docket No. 71-22; Notice No. 1)

This amendment adds certain tire sizes and alternative rim sizes to the passenger car tire standard and tire selection and rim standard.

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A, Standard No. 109 (§ 571.109) and to Appendix A, Standard No. 110 (§ 571.110). Under these guidelines, the addition becomes effective 30 days from date of publication in the *Federal Register*, if no objections to the proposed additions are received. If objections to the amendment are received, rulemaking pursuant to the procedures for motor vehicle safety standards (49 CFR Part 553) is followed.

The Rubber Manufacturers Association has petitioned for the following:

(1) The addition of the new AR70-13, B60-13 and BR60-13 tire size designations to Table I, Appendix A of Standard No. 109 and the appropriate test and alternative rims to Table I, Appendix A of Standard No. 110.

(2) The addition of the following alternative rim sizes to Table I, Appendix A of Standard No. 110:

(a) The 6½-JJ alternative rim size for the F78-15 tire size designation.

(b) The 6½-JJ alternative rim size for the 7.75-15 tire size designation.

The European Tyre and Rim Technical Organisation has petitioned for the addition of the following alternative rim sizes to Table I, Appendix A of Standard No. 110:

(1) The 5-JJ alternative rim size for the 145R13 tire size designation.

(2) The 4-JJ alternative rim size for the 150R13 tire size designation.

(3) The 6½-JJ alternative rim size for the 185R14 tire size designation.

(4) The 6½-JJ alternative rim size for the 9.00-15 tire size designation.

The Ford Motor Company has petitioned for the addition of the 5½-JJ alternative rim size for the 6.45-13/165-13 tire size designation to Table I, Appendix A of Standard No. 110.

The Toyota Motor Company, Ltd., has petitioned for the addition of the 4-JJ alternative rim for the 155R13 tire size designation to Table I, Appendix A of Standard No. 110.

On the basis of the data submitted by the European Tyre and Rim Technical Organisation, the Rubber Manufacturers Association, the Ford Motor Company and Toyota Motor Company, Ltd. indicating compliance with the requirements of Federal Motor Vehicle Safety Standards No. 109 and No. 110 and other information submitted in accordance with the procedural guidelines, § 571.109 and § 571.110 of Title 49, Code of Federal Regulations are amended, effective 30 days from date of publication in the *Federal Register*.

(Secs. 103 and 119, National Traffic and Motor Vehicle Safety Act of 1966, 15 U.S.C. 1392, 1407; delegations of authority at 49 CFR 1.51 and 501.8)

Issued on December 15, 1971.

Robert L. Carter  
Acting Associate Administrator  
Motor Vehicle Programs

36 F.R. 24940  
December 24, 1971



**PREAMBLE TO AMENDMENT TO  
APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 72-18; Notice 1)**

This amendment adds certain tire sizes and accompanying values, and amends values for existing tire size designations in Motor Vehicle Safety Standard No. 109 (49 CFR § 571.109), and adds alternative rim sizes and test rims to Motor Vehicle Safety Standard No. 110 (49 CFR § 571.110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A, Standard No. 109, and to Appendix A, Standard No. 110. Under these guidelines the additions become effective 30 days from the date of publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking pursuant to the procedures for motor vehicle safety standards (49 CFR 553) is followed.

Beginning in January 1972, the NHTSA inaugurated a procedure whereby amendments to the tables of Appendix A of Standard No. 109 and Appendix A of Standard No. 110 would be published approximately 4 times per year: on

or about January 1, April 1, July 1, and October 1. Amendments to the tables were not published April 1 or July 1, 1972, and this notice publishes the amendments that would normally have been published on those dates.

Accordingly, Appendix A of Motor Vehicle Safety Standard No. 109 (49 CFR § 571.109), and Appendix A of Motor Vehicle Safety Standard No. 110 (49 CFR § 571.110), are amended, subject to the thirty-day provision indicated above, as specified below.

This notice is issued under the authority of sections 103, 119, 201, and 202 of the National Traffic and Motor Vehicle Safety Act (15 USC 1392, 1407, 1421, 1422) and the delegations of authority at 49 CFR 1.51 and 49 CFR 501.8.

Issued on July 27, 1972.

Robert L. Carter  
Associate Administrator for  
Motor Vehicle Programs

**37 F.R. 15430  
August 2, 1972**



**PREAMBLE TO AMENDMENT TO  
APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires, Tire Selection and Rims for Passenger Cars**

**(Docket No. 72-18; Notice 2)**

The NHTSA published on August 2, 1972 (37 F.R. 15430), additions and amendments to the tables in the Appendices of Motor Vehicle Safety Standard No. 109 (49 CFR 571.109) and Motor Vehicle Safety Standard No. 110 (49 CFR 571.110). Guidelines published in the *Federal Register* on October 5, 1968 (33 F.R. 14964), provide that routine additions to the Tables become effective 30 days from the publication date if no objections are received. If objections are received, rulemaking pursuant to 49 CFR Part 553 is initiated.

The European Tyre and Rim Technical Association (E.T.A.T.O.) has raised an objection to changes made by the August 2 publication to load values in Table I-H of Standard No. 109. Accordingly, the amendment to Table I-H, Appendix A, Motor Vehicle Safety Standard No. 109 (571.109), published August 2, 1972 (item

3, page 15430), is hereby revoked. Notice of proposed rulemaking regarding these load values will be issued. The other amendments issued in the publication of August 2, 1972, will become effective if no further objections are received by September 1, 1972.

This notice is issued pursuant to sections 103, 119, 201, and 202 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1392, 1407, 1421, and 1422) and the delegations of authority at 49 CFR 1.51, 49 CFR 501.8.

Issued on August 29, 1972.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**37 F.R. 17837  
September 1, 1972**





**PREAMBLE TO AMENDMENT TO  
APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires, Tire Selection and Rims for Passenger Cars**

**(Docket No. 72-21; Notice 1)**

This amendment adds certain new tire size designations and accompanying values and amends values for existing tire size designations in Motor Vehicle Safety Standard No. 109 (49 CFR § 571.109), and adds alternative rim sizes and test rims to Motor Vehicle Safety Standard No. 110 (49 CFR § 571.110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be added to Appendix A, Standard No. 109, and to Appendix A, Standard No. 110. Under these guidelines the additions become effective 30 days from the date of publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking pursuant to the procedures for motor vehicle safety standards (49 CFR Part 533) is followed. An amendment to the tables was published on August 2, 1972 (37 F.R. 15430). This notice adds tire size designations inadvertently omitted

and corrects certain errors made in that publication. It also adds a new tire size designation on which a petition was received after August 2, 1972.

Accordingly, Appendix A of Motor Vehicle Safety Standard No. 109 (49 CFR § 571.109), and Appendix A of Motor Vehicle Safety Standard No. 110 (49 CFR § 571.110), are amended . . .

Effective: October 15, 1972

(Sec. 103, 119, 201, 202, National Traffic and Motor Vehicle Safety Act. 15 U.S.C. 1392, 1407, 1421, 1422 delegations of authority at 49 CFR 1.51, 49 CFR 501.8)

Issued on September 8, 1972.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**37 F.R. 18733  
September 15, 1972**



**PREAMBLE TO AMENDMENT TO  
APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires, Tire Selection and Rims for Passenger Cars**

(Docket No. 72-18; Notice 3)

The NHTSA published on August 2, 1972 (37 F.R. 15430), additions and amendments to the Tables in the Appendices of Motor Vehicle Safety Standard No. 109 (49 CFR § 571.109) and Motor Vehicle Safety Standard No. 110 (49 CFR § 571.110). Guidelines published in the *Federal Register* on October 5, 1968 (33 F.R. 14964), provide that routine additions to the Tables become effective 30 days from the publication date if no objections are received. If objections are received, rulemaking pursuant to 49 CFR Part 553 is initiated.

The Rubber Manufacturers' Association (R.M.A.) and the B.F. Goodrich Tire Company have raised an objection to the change made by the August 2 publication to Footnote 1, Table I-R of Standard No. 109, which would have allowed the letters "HR", "SR", or "VR" to be included in any tire size designation adjacent to or in

place of the dash. Accordingly, the amendment to Footnote 1, Table I-R of Appendix A, Motor Vehicle Safety Standard No. 109 (571.109), published August 2, 1972 (Item 17, page 15432), is hereby revoked. Notice of proposed rulemaking regarding this change will be issued before the rule is amended.

This notice is issued pursuant to sections 103, 119, 201, and 202 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1392, 1407, 1421, and 1422) and the delegations of authority at 49 CFR 1.51, 49 CFR 501.8.

Issued on September 14, 1972.

Elwood T. Driver  
Acting Associate Administrator  
Motor Vehicle Programs

**37 F.R. 19138  
September 19, 1972**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires—Passenger Cars****(Docket No. 72-25; Notice1)**

This amendment adds certain tire size designations to Motor Vehicle Safety Standard No. 109 (49 CFR 571.109) and adds alternative rim sizes and test rims to Motor Vehicle Safety Standard No. 110 (49 CFR 571.110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be made to Appendix A, Standard No. 109, and to Appendix A, Standard No. 110. Under these guidelines the additions become effective 30 days from the date of publication in the *Federal Register*, if no objections are received. If objections are received, rule-making pursuant to the procedures for motor vehicle safety standards (49 CFR Part 553) is followed.

Accordingly, Appendix A of Motor Vehicle Safety Standard No. 109 (49 CFR 571.109), and Appendix A of Motor Vehicle Safety Standard No. 110 (49 CFR 571.110), are amended, subject to the 30-day provision indicated above . . . .

This notice is issued pursuant to sections 103, 119, 201 and 202 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 USC 1392, 1407, 1421, 1422) and the delegation of authority of 49 CFR 1.51 and 40 CFR 501.8.

Issued on October 16, 1972.

Robert L. Carter  
Associate Administrator

**37 F.R. 22620****October 20, 1972**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires—Passenger Cars****(Docket No. 73-7; Notice 1)**

This amendment adds certain tire size designations to Federal Motor Vehicle Safety Standard No. 109 (49 CFR 571.109) and adds alternative rim sizes and test rims to Federal Motor Vehicle Safety Standard No. 110 (49 CFR 571.110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be made to Appendix A, Standard No. 109, and to Appendix A, Standard No. 110. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of Federal Motor Vehicle Safety Standard No. 109 (49 CFR 571.-

109), and Appendix A of Federal Motor Vehicle Safety Standard No. 110 (49 CFR 571.110), are amended, subject to the 30 day provision indicated above, as specified below.

Effective date: April 30, 1973, if objections are not received.

(Sec. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421, and 1422; delegations of authority 49 CFR 1.51, 49 CFR 501.8)

Issued on March 26, 1973.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**38 F.R. 8514**  
**April 3, 1973**





**PREAMBLE TO AMENDMENT TO APPENDIX A  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 73-18; Notice 1)**

This amendment adds certain tire size designations to Federal Motor Vehicle Safety Standard No. 109 (49 CFR 571.109) and adds alternative rim sizes and test rims to Federal Motor Vehicle Safety Standard No. 110 (49 CFR 571.110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be made to Appendix A, Standard No. 109, and to Appendix A, Standard No. 110. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rule-making procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of Federal Motor Vehicle Safety Standard No. 109 (49 CFR 571.109), and Appendix A, of Federal Motor Vehicle Safety Standard No. 110 (49 CFR 571.110), are amended, subject to the 30 day provision indicated above. . . .

Effective date: August 2, 1973, if objections are not received.

(Secs. 103, 119, 201, and 202, Public Law 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421, and 1422; delegation of authority at 38 F.R. 12147)

Issued on June 26, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

**38 F.R. 17842**

**July 5, 1973**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR  
VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 73-23; Notice 1)**

This amendment adds certain tire size designations to 49 CFR § 571.109 (Federal Motor Vehicle Safety Standard No. 109) and adds alternative and test rim sizes to 49 CFR § 571.110 (Federal Motor Vehicle Safety Standard No. 110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be made to Appendix A, § 571.109, and to Appendix A, § 571.110. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rule making procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 and Appendix A of 49 CFR § 571.110 are amended, subject to the 30-day provision indicated above.

Effective date: November 9, 1973, if objections are not received.

(Sections 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421, and 1422; delegations of authority at 49 CFR § 1.51 and 49 CFR § 501.8.)

Issued on October 3, 1973.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**38 F.R. 28569  
October 15, 1973**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE  
SAFETY STANDARD NO. 109**

**(Docket No. 74-6; Notice 1)**

This amendment adds certain tire size designations and corrects certain tire size criteria in 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109). It also adds alternative and test rim sizes to 49 CFR 571.110 (Federal Motor Vehicle Safety Standard No. 110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be made to Appendix A, § 571.109 and to Appendix A, § 571.110. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 and Appendix A of 49 CFR § 571.110 are

amended, subject to the 30-day provision indicated above . . . .

Effective date: March 7, 1974, if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563; 80 Stat. 718; 15 U.S.C. 1392, 1407, 1421, and 1422; delegations of authority at 49 CFR § 1.51 and 49 CFR § 501.8.)

Issued on January 30, 1974.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**39 F.R. 4664  
February 6, 1974**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE  
SAFETY STANDARD NO. 109**

**(Docket No. 74-17; Notice 1)**

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109) and adds alternative and test rim sizes to 49 CFR 571.110 (Federal Motor Vehicle Safety Standard No. 110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be made to Appendix A, § 571.109 and to Appendix A, § 571.110. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 and Appendix A of 49 CFR § 571.110 are

amended, subject to the 30-day provision indicated above . . . .

Effective date: May 22, 1974, if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421 and 1422; delegations of authority at 49 CFR § 1.51 and 49 CFR § 501.8.)

Issued on April 16, 1974.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**39 F.R. 14595  
April 25, 1974**





**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE  
SAFETY STANDARD NO. 109**

**(Docket No. 74-26; Notice 1)**

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109) and adds alternative and test rim sizes to 49 CFR 571.110 (Federal Motor Vehicle Safety Standard No. 110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions could be made to Appendix A, § 571.109 and to Appendix A, § 571.110. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 and Appendix A of 49 CFR § 571.110 are

amended, subject to the 30-day provision indicated above . . . .

Effective date: August 19, 1974, if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421 and 1422; delegations of authority at 49 CFR 1.51 and 49 CFR 501.8.)

Issued on July 11, 1974.

Francis Armstrong  
Acting Associate Administrator  
Motor Vehicle Programs

**39 F.R. 26404  
July 19, 1974**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires****(Docket No. 74-38; Notice 1)**

This amendment adds tire load ratings to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109) and adds alternative rim sizes to 49 CFR 571.110 (Federal Motor Vehicle Safety Standard No. 110).

On October 5, 1968, guidelines were published in the *Federal Register* (33 F.R. 14964) by which routine additions would be made to Appendix A, § 571.109 and to Appendix A, § 571.110. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 and Appendix A of 49 CFR § 571.110 are amended, subject to the 30-day provision indicated above . . . .

*Effective date:* November 21, 1974, if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1407, 1421 and 1422; delegations of authority at 49 CFR 1.51 and 49 CFR 501.8.)

Issued on October 16, 1974.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs  
**39 F.R. 37489**  
**October 22, 1974**



**PREAMBLE TO AMENDMENT TO APPENDIX A MOTOR VEHICLE SAFETY STANDARD NO. 109****New Pneumatic Tires****(Docket No. 75-1; Notice 1)**

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109) and adds alternative and test rim sizes to 49 CFR 571.110 (Federal Motor Vehicle Safety Standard No. 110).

Guidelines were published in the *Federal Register* October 5, 1968 (33 F.R. 14964), and amended August 13, 1974 (39 F.R. 28980), specifying procedures by which routine additions are made to Appendix A, § 571.109 and to Appendix A, § 571.110. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR §571.109 and Appendix A of 49 CFR § 571.110 are amended, subject to the 30-day provision indicated above . . . .

*Effective date:* February 24, 1975, if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 15 U.S.C. 1392, 1407, 1421 and 1422; delegations of authority at 49 CFR § 1.51 and 49 CFR § 501.8.)

Issued on January 17, 1975.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**40 F.R. 3597**  
**January 23, 1975**



# **PREAMBLE TO AMENDMENT TO APPENDIX A OF MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **New Pneumatic Tires** (Docket No. 75-1; Notice 2)

This amendment adds certain tire size designations to 49 CFR 571.109, Federal Motor Vehicle Safety Standard No. 109, and adds alternative and test run sizes to 49 CFR 571.111, Federal Motor Vehicle Safety Standard No. 110.

Guidelines were published in the *Federal Register* on October 3, 1968 (33 F.R. 14964), and amended August 16, 1974 (39 F.R. 28850), specifying procedures by which routine additions could be made to Appendix A, § 571.109 and Appendix A, § 571.111. Under these guidelines the additions become effective 90 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 and Appendix A of 49 CFR § 571.111 are amended, subject to the 90-day provision indicated above.

*Effective date:* August 2, 1975, if objections are not received.

Secs. 103, 105, 301 and 302, Pub. L. 92-583, 50 Stat. 513, 17 U.S.C. 1352a, 1475, 1476 and 1477; delegation of authority at 49 CFR § 1.501 and 49 CFR § 5.12.

Issued on June 26, 1975.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Program

40 F.R. 28457  
July 7, 1975





**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires**

**(Docket No. 75-1; Notice 3)**

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109).

Guidelines were published in the *Federal Register* on October 5, 1968 (33 F.R. 14964), and amended August 13, 1974 (39 F.R. 28980), specifying procedures by which routine additions could be made to Appendix A, § 571.109. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 is amended, subject to the 30-day provision indicated above. . . .

*Effective date:* December 15, 1975, if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421 and 1422); delegations of authority at 49 CFR 1.51 and 49 CFR 501.8.)

Issued on November 6, 1975.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**40 F.R. 53033  
November 14, 1975**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires**

**(Docket No. 75-1; Notice 2)**

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109).

Guidelines were published in the *Federal Register* on October 5, 1968 (33 F.R. 14964), and amended August 31, 1974 (39 F.R. 28980), specifying procedures by which routine additions could be made to Appendix A, § 571.109. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 is amended, subject to the 30-day provision indicated above. . . .

*Effective date:* February 23, 1976 if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421 and 1422); delegations of authority at 49 CFR 1.50 and 59 CFR 501.8.)

Issued on January 20, 1976.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**41 F.R. 3870  
January 27, 1976**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires**

**(Docket No. 75-1; Notice 2)**

This amendment adds a new tire size designation to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109).

Guidelines were published in the *Federal Register* on October 5, 1968 (33 FR 14964), and amended August 31, 1974 (39 FR 28980), specifying procedures by which routine additions could be made to Appendix A, § 571.109. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 is amended, subject to the 30-day provision indicated above. . . .

*Effective date:* May 22, 1976 if objections are not received.

(Sec. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421 and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on April 19, 1976.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**41 F.R. 16804  
April 22, 1976**



## PREAMBLE TO AMENDMENT TO APPENDIX A OF MOTOR VEHICLE SAFETY STANDARD NO. 109

### New Pneumatic Tires

(Docket No. 76-3; Notice 3)

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109).

Guidelines were published in the *Federal Register* on October 5, 1968 (33 FR 14964), and amended August 31, 1974 (39 FR 28980), specifying procedures by which routine additions could be made to Appendix A, § 571.109. Under these guidelines the additions become effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 is amended, subject to the 30-day provision indicated above. . . .

*Effective date:* October 18, 1976 if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421 and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on September 10, 1976.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**41 F.R. 40473**  
**September 20, 1976**





**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires**

**(Docket No. 76-3; Notice 4)**

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109).

Guidelines were published in the *Federal Register* on October 5, 1968 (33 FR 14964), and amended August 31, 1974 (39 FR 28980), specifying procedures by which routine additions could be made effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 is amended, subject to the 30-day provision indicated above. . . .

*Effective date:* February 22, 1977, if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421 and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on January 12, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**42 F.R. 3844**  
**January 21, 1977**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires**

**(Docket No. 77-02; Notice 1)**

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109).

Guidelines were published in the *Federal Register* on October 5, 1968 (33 CFR 14964), and amended August 31, 1974 (39 FR 28980), specifying procedures by which routine additions could be made effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

Accordingly, Appendix A of 49 CFR § 571.109 is amended subject to the 30 day provision indicated above, as specified below.

*Effective date:* March 14, 1977, if objections are not received.

(Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on February 4, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**42 F.R. 9022**  
**February 14, 1977**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires**

**(Docket No. 77-02; Notice 2)**

This amendment adds certain tire size designations to 49 CFR 571.109 (Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*).

*Effective date:* July 11, 1977, if objections are not received.

For further information contact:

John Diehl  
Office of Crash Avoidance  
Motor Vehicle Programs  
National Highway Traffic Safety Admin-  
istration  
400 Seventh Street, S.W.  
Washington, D.C. 20590  
(202-426-1715)

According to agency practice, regular amendments are published modifying the Appendix of Standard No. 109. Guidelines were published in the *Federal Register* on October 5, 1968 (33 FR 14964), and amended August 31, 1974 (39 FR 28980), specifying procedures by which routine additions could be made effective 30 days

from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

The principal authors of this document are John Diehl, Office of Crash Avoidance, and Roger Tilton, Office of Chief Counsel.

Accordingly, Appendix A of 49 CFR § 571.109 is amended subject to the 30 day provision indicated above. . . .

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on June 3, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**42 F.R. 30620  
June 16, 1977**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF MOTOR VEHICLE  
SAFETY STANDARD NO. 109**

**New Pneumatic Tires**

**(Docket No. 77-02; Notice 3)**

This amendment adds certain tire size designations to Standard No. 109, *New Pneumatic Tires—Passenger Cars*. This addition is made pursuant to a request from the European Tyre and Rim Technical Organisation to permit the production of tires with the specified designations.

Effective date: September 7, 1977, if objections are not received.

For further information contact:

John A. Diehl  
Office of Crash Avoidance  
Motor Vehicle Programs  
National Highway Traffic Safety  
Administration  
400 Seventh Street, S.W.  
Washington, D.C. 20590  
(202-426-1715)

Supplementary information: According to agency practice, regular amendments are published modifying the Appendix of Standard No. 109. Guidelines were published in the *Federal Register* on October 5, 1968 (33 F.R. 14964), and amended August 31, 1974 (39 F.R. 28980),

specifying procedures by which routine additions could be made effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

The principal authors of this document are John A. Diehl, Office of Crash Avoidance, and Roger Tilton, Office of Chief Counsel.

Accordingly, Appendix A of 49 CFR § 571.109 is amended subject to the 30 day provision indicated above. . . .

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on August 1, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**42 F.R. 39984  
August 8, 1977**





**PREAMBLE TO AMENDMENT TO APPENDIX A OF MOTOR VEHICLE  
SAFETY STANDARD NO. 109**

**(Docket No. 77-02; Notice 4)**

This amendment adds certain tire size designations to Standard No. 109, *New Pneumatic Tires—Passenger Cars*. This addition is made pursuant to a request from the Rubber Manufacturers Association to permit the production of tires with the specified designations.

Effective date: September 7, 1977, if objections are not received.

For further information contact:

John A. Diehl  
Office of Crash Avoidance  
Motor Vehicle Programs  
National Highway Traffic Safety  
Administration  
400 Seventh Street, S.W.  
Washington, D.C. 20590  
(202-426-1715)

Supplementary Information: According to agency practice, regular amendments are published modifying the Appendix of Standard No. 109. Guidelines were published in the *Federal Register* on October 5, 1968 (33 F.R. 14964), and amended August 31, 1974 (39 F.R. 28980), specifying procedures by which routine additions

could be made effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed.

The principal authors of this document are John A. Diehl, Office of Crash Avoidance, and Roger Tilton, Office of Chief Counsel.

Accordingly, Appendix A of 49 CFR § 571.109 is amended subject to the 30 day provision indicated above. . . .

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8).

Issued on August 1, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**42 F.R. 39983  
August 8, 1977**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**(Docket No. 77-02; Notice 5)**

This amendment adds certain tire size designations to Standard No. 109, *New Pneumatic Tires—Passenger Cars*. This addition is made pursuant to a request from the Rubber Manufacturers Association (RMA) to permit the production of tires with the specified designation. Effective Date: November 25, 1977, if objections are not received.

**For Further Information Contact:**

John A. Diehl, Office of Crash Avoidance,  
Motor Vehicle Programs, National Highway  
Traffic Safety Administration, 400 Seventh  
Street, S.W., Washington, D.C. 20590 (202-  
426-1715).

**Supplementary Information:** According to agency practice, regular amendments are published modifying the Appendix of Standard No. 109. Guidelines were published in the Federal Register on October 5, 1968 (33 FR 14964), and amended August 31, 1974 (39 FR 28980), specifying procedures by which routine additions could be made effective 30 days from publication in the Federal Register, if no objections are received.

If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed. The RMA petitioned for this addition to the tire tables to permit production of tires with the specified designation. Their request is granted.

Accordingly, Appendix A of 49 CFR § 571.109 is amended subject to the 30 day provision indicated above, as specified below. . . .

The principal authors of this document are John A. Diehl, Office of Crash Avoidance, and Roger Tilton, Office of Chief Counsel.

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8)

Issued on October 17, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

**42 F.R. 56333  
October 25, 1977**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**(Docket No. 78-03; Notice 1)**

This amendment adds certain tire size designations to Standard No. 109, *New Pneumatic Tires—Passenger Cars*. This addition is made pursuant to a request from the Rubber Manufacturers Association (RMA) to permit the production of tires with the specified designations.

Effective Date: March 8, 1978 if objections are not received.

For further information contact:

John A. Diehl, Crash Avoidance Division,  
Office of Vehicle Safety Standards, National  
Highway Traffic Safety Administration, 400  
Seventh Street, S.W., Washington, D.C.  
20590 (202-426-1715).

Supplementary Information: According to agency practice, regular amendments are published modifying the Appendix of Standard No. 109. Guidelines were published in the *Federal Register* on October 5, 1968 (33 F.R. 14964), amended August 31, 1974 (39 F.R. 28980), specifying procedures by which routine additions could be made effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking

procedures for the issuance of motor vehicle safety standards (49 CFR Part 533) are followed. The RMA petitioned for this addition to the tire tables to permit production of tires with the specified designations. This request is granted.

Accordingly, Appendix A of 49 CFR § 571.109 is amended subject to the 30 day provision indicated. . . .

The principal authors of this document are John A. Diehl, Office of Vehicle Safety Standards, and Roger Tilton, Office of Chief Counsel.

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421 and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on January 27, 1978.

Elwood T. Driver  
Acting Associate Administrator  
for Rulemaking

**43 F.R. 4859**  
**February 6, 1978**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

(Docket No. 78-03; Notice 2)

This amendment adds certain tire size designations to Standard No. 109, *New Pneumatic Tires—Passenger Cars*. This addition is made pursuant to a request from the Michelin Tire Corporation to permit the production of tires with the specified designations.

Effective Date: March 8, 1978, if objections are not received:

For further information contact:

John A. Diehl, Crash Avoidance Division,  
Office of Vehicle Safety Standards, National  
Highway Traffic Safety Administration, 400  
Seventh Street, S.W., Washington, D.C.  
20590 (202-426-1717).

Supplementary Information: According to agency practice, regular amendments are published modifying the Appendix of Standard No. 109. Guidelines were published in the *Federal Register* on October 5, 1968 (33 F.R. 14964), and amended August 31, 1974 (39 F.R. 28980), specifying procedures by which routine additions could be made effective 30 days from publication in the *Federal Register*, if no objections are received. If objections are received, rulemaking

procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed. The Michelin Tire Corporation petitioned for this addition to the tire tables to permit production of tires with the specified designations. This request is granted.

The principal authors of this document are John A. Diehl, Crash Avoidance Division, and Robert M. Churella, Office of Chief Counsel.

Accordingly, Appendix A of 49 CFR § 571.109 is amended subject to the 30 day provision indicated. . . .

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on January 27, 1978.

Elwood T. Driver  
Acting Associate Administrator  
for Rulemaking

**43 F.R. 4860**  
**February 6, 1978**





## PREAMBLE TO APPENDIX A OF FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109

### New Pneumatic Tires for Passenger Cars

(Docket No. 77-02; Notice 5)

*Action:* Final rule.

*Summary statement:* This amendment adds certain tire size designations to Standard No. 109, New Pneumatic Tires—Passenger Cars. The addition is made pursuant to a request from the Japan Automobile Tire Manufacturers Association to permit the production of tires with the specified designations.

*Effective date:* January 11, 1978, if objections are not received.

*For further information contact:*

John A. Diehl, Office of Crash Avoidance,  
Motor Vehicle Programs, National Highway  
Traffic Safety Administration, 400 Seventh  
Street, S.W., Washington, D.C. 20590,  
202-426-1715.

*Supplementary information:* According to agency practice, regular amendments are published modifying the Appendix of Standard No. 109. Guidelines were published in the FEDERAL REGISTER on October 5, 1968 (33 FR 14964), and amended April 31, 1974 (39 FR 28980), specifying procedures by which routine additions could be made effective 30 days from

publication in the FEDERAL REGISTER, if no objections are received. If objections are received, rulemaking procedures for the issuance of motor vehicle safety standards (49 CFR Part 553) are followed. The Japan Automobile Tire Manufacturers Association petitioned for this addition to the tire tables to permit the production of tires with the specified designations.

The principal authors of this document are John A. Diehl, Office of Crash Avoidance, and Roger Tilton, Office of Chief Counsel.

Accordingly, Appendix A of 49 CFR 571.109 is amended, subject to the 30-day provision indicated above, . . .

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on December 7, 1977.

Robert L. Carter  
Associate Administrator  
Motor Vehicle Programs

42 F.R. 62386  
December 12, 1977



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 78-04, Notice 2; Docket No. 78-03, Notice 4)**

This notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding four new metric tire size designations to Appendix A of the standard and by establishing criteria for testing and labeling higher inflation pressure tires. These amendments are made in response to petitions by the Goodyear Tire & Rubber Co. and the Rubber Manufacturers Association (RMA) in support of a Goodyear tire, and Michelin Tire Corp. The notice permits the introduction into interstate commerce of certain new metric-unit tires, one of which is a higher inflation tire enabling improved automobile fuel economy. The addition of the metric-unit tires accommodates the nation's conversion to the metric system, and the addition of the higher inflation tire also responds to the nation's need to conserve energy. This notice defers final action on proposals, issued in response to petitions by the RMA and Michelin Tire Corp., to amend the standard by adding two other new metric tire size designations to Appendix A.

*Effective date:* Date of publication of this notice in **FEDERAL REGISTER**, June 5, 1978.

*For further information contact:*

Arturo Casanova, Crash Avoidance Division,  
Office of Vehicle Safety Standards, National  
Highway Traffic Safety Administration, 400  
Seventh Street, S.W., Washington, D.C.  
20590, 202-426-1715.

*Supplementary information:* This notice establishes a final rule with respect to two separate rulemaking actions, one initiated pursuant to a petition by Michelin Tire Corp. (Michelin), and the other initiated pursuant to petitions by the

Goodyear Tire & Rubber Co. (Goodyear) and the RMA.

In response to a petition by Michelin, (October 17, 1977), the NHTSA published a final rule (February 6, 1978; 43 FR 4859) amending Appendix A of Standard No. 109 by adding five new metric tire size designations under an abbreviated rulemaking procedure for expediting routine amendments to Appendix A tire tables. Guidelines for this procedure (October 5, 1968, 33 FR 14963; as amended May 4, 1971, 36 FR 8298; July 22, 1971, 36 FR 13601; and August 31, 1974, 39 FR 28980) provide that such additions may be made without being preceded by a notice of proposed rulemaking. However, if objections to a final rule are received within the 30 day comment period provided, the rule does not become effective. In this case regular rulemaking procedures for issuing and amending motor vehicle safety standards are initiated. Objections to the February 6, 1978, amendments were received. On April 3, 1978, the agency published a notice (43 FR 13903) proposing amendments of Standard No. 109 which would modify Appendix A by adding four new metric tire size designations and revise the table in Figure 1 of the standard by adding a new wheel size and its corresponding bead unseating test dimension. The proposed revisions of the table in Figure 1 are necessary to enable performance of the bead unseating test (section 4.2.2.3) on one of the proposed tire sizes.

In response to petitions from Goodyear (November 3, 1977) and the RMA (November 17, 1977) in support of a Goodyear tire, and from the RMA (January 17, 1978) in support of a Dunlop tire, the NHTSA published a notice (March 2, 1978; 43 FR 8570) proposing amend-

ments of Standard No. 109 which would modify Appendix A of the standard by adding two new metric tire size designations and modify the standard to allow a higher maximum inflation pressure and establish criteria for performance testing of higher inflation pressure tires.

All comments received on these notices have been considered and the most significant are discussed below.

For the reasons set forth below this notice (1) adopts the amendments proposed in the Michelin notice with respect to the addition to Appendix A of the new tire size designations 195 60R390, 180 65R390, and 190 65R390, requested by Michelin, (2) adopts the amendments proposed in the Goodyear-RMA notice with respect to the addition to Appendix A of the new tire size designation P215 65R390 requested by Goodyear and RMA in support of a Goodyear tire, and the modifications of the standard necessary to enable testing that tire, and (3) defers final action on (a) the amendments proposed in the Michelin notice to add the 180 65R365 tire size designation to Appendix A and to revise the table in Figure 1 of the standard to enable conducting the head unseating test on this tire size, requested by Michelin, and (b) the amendment proposed in the Goodyear-RMA notice to add the P195 65R370 tire size designation to Appendix A, requested by RMA in support of a Dunlop tire, *Goodyear, Dunlop, and Michelin Tires: Interim*. The nation's gradual conversion from the English system of measurement to the metric system is reflected in the current proposals to add metric tire size designations to Appendix A tire tables. Some similarity in size between existing English-unit tires and new metric-unit tires requested seems inevitable during the conversion. However, the problems posed by conversion, if any, should be temporary, i.e., limited to the transition phase.

Comments objecting to the addition of each of the new metric tire size designations proposed in the Michelin and Goodyear-RMA notices alleged that "intermix" or "mismatch" problems could accidentally occur when replacing a tire in the course of vehicle use. Some commenters asserted that, because the nominal diameters of the proposed metric tires and corresponding metric rims

(365mm, 370mm, and 390mm) are very nearly the same as those of certain existing English-unit tire rim diameters (14 inch, 15 inch, and 16 inch), it would be technically possible to mount an English-unit tire on a requested metric unit rim, or conversely to mount a metric-unit tire on an existing English-unit rim. Some commenters alleged that serious safety problems, such as tire explosion during, or road failures shortly after tire mounting could occur as a result of such intermixing. General Motors (GM) and the Armstrong Rubber Company (Armstrong) directed such allegations to all of the requested tires in both notices, and the Department of California Highway Patrols directed this objection to the Michelin requests. Other commenters predicted that tire rim mismatches could occur among certain combinations of the new metric tire and rim sizes proposed for amendment of Standard No. 109, should all proposed amendments be adopted. However, none of the objections summarized above were supported by data demonstrating the safety hazards alleged, or even demonstrating that a tire could actually be mounted on an inappropriate rim and hold air.

GM requested that the NHTSA defer action on all the proposed new tire sizes for one year to allow the tire and vehicle industries to work out a general solution to potential intermix problems raised by these and other metric tires requested later. Dunlop requested that the NHTSA take no final action on the tires proposed in both notices without considering the potential safety hazards involved. The Department of California Highway Patrol recommended that the trend of proliferation of tire sizes be eliminated from the passenger car tire market in view of potential safety problems suggested. Mercedes-Benz asserted that the differences among the proposed tires were sufficient to prevent intermix, but that the anticipated introduction of additional tire-rim combinations raised the possibility of mismatch problems. Mercedes stated that the anticipated proliferation of metric tire sizes raised the prospect that the spare parts industry might not expand quickly enough to meet after-market needs, in view of the fact that a vehicle owner would need to replace his tires with the same type tire originally mounted. Mercedes suggested that the NHTSA encourage the devel-

opment of uniform and interchangeable tires and rims. Armstrong objected to the Michelin and Goodyear proposals because of alleged confusion to the public and tire service personnel arising from the slight dimensional differences in metric and English tire-rim combinations.

Other persons submitted that no intermix problems were posed by the proposed tires. Chrysler Corporation stated that the P215 65R390 Goodyear tire raised no unique tire-rim intermix issues, but submitted no supporting data. Goodyear stated that its proposed metric tire and JM rim were designed with an objective of preventing misapplication with existing tires and rims. Goodyear submitted data on a series of automatic and hand tire-mounting trials conducted by the Tire and Rim Association (T&RA) on an earlier version of the 390 JM rim associated with this tire. The data, together with data submitted on the JM contour, demonstrated that the designated maximum well-depth of the 390 JM rim design precluded misapplication of 15 inch tires on it. Goodyear also submitted that while the Goodyear 390 mm tire (15.35 inches) can be mounted on a standard 15-inch rim, it will not hold air because flutes molded into the lower bead area of the tire bleed out air. No supporting data was provided. Ford submitted data on intermix tests conducted by Goodyear in conjunction with the T&RA on the precursor of the requested Goodyear tire and rim, and also data on tests conducted by Ford on the 390 mm tire requested by Goodyear and on the 390 mm TR rim requested by Michelin for use with its requested 390 mm tires. Test results were (1) that a 15 inch tire could not be mounted on the precursor to the JM rim or on the TR rim, and (2) that the Goodyear tire could be mounted on a 15 inch rim, but that the molded flutes or "blow-by" feature of the Goodyear tire bead prevented the formation of an air-tight seal. Based on test results, Ford supported approval of the 390 mm Goodyear and Michelin tires, but recommended that Standard No. 109 be amended to require this "blow-by" feature on metric tires to prevent misapplication with English-unit rims. Saab-Scania submitted that it had attempted to mount a 15 inch tire on the Michelin 390 mm TR rim and found it impossible; and that while its attempts to mount the 390 mm Michelin tire on a

15 inch JJ rim were successful, the tire could not be inflated.

The intermix concerns of several commenters would have been more appropriately raised in a petition for rulemaking that addressed any safety problems demonstrated as caused by intermixing inappropriate tires and rims. Alternatively, the concern could have been raised in a petition to commence an investigation to determine whether the size or configuration of the tires and rims constituted, in light of the alleged possibility of intermix and associated safety hazard, a safety related defect. On its own initiative, the agency is preparing to issue an advanced notice of proposed rulemaking on this subject. In view of its responsibility and broad authority under the Act to deal with safety problems, the agency believed that the allegation of intermix problems with respect to the current proposals to add new metric tires to Standard No. 109 warranted immediate inquiry. Accordingly, the agency initiated a program to test the intermix potential of these tires and associated rims with existing English-unit tires and rims, i.e., to test whether the proposed tires can be mounted on existing rims, or existing tires mounted on the proposed rims, and if so, whether safety hazards are found during mounting or on-road use.

In response to a request by the NHTSA, Goodyear submitted the 390 mm P215 65R390 tire and 390 mm JM rim, and Michelin submitted one of its 390 mm tires, the 190 65R390 tire and the 390 mm TR rim. Dunlop and Michelin stated they would not be able to submit the 370 mm P195 65R370 and the 365 mm 180 65R365 tires, respectively, until a later date.

The NHTSA tests conducted at the agency's Safety Research Laboratory in Riverdale, Maryland corroborated the test data submitted in support of the proposed 390 mm Goodyear and Michelin tires and rims, as summarized above. A standard 15 inch tire could not be intermixed with either the 390 mm JM or the 390 mm TR rim, because the well-depths established for these rims precluded mounting the tire. While the 390 mm Goodyear and Michelin tires submitted could be mounted on the existing 15 inch JJ contour rim, the special "flutes" incorporated on the bead seal area of each of these tires prevented the tire

from holding air. Although comments alleged potential intermix problems relative to the requested 390 mm tires and rims and the 16 inch tire and 16 inch JJ rim, this allegation is academic since no 16 inch tires have ever been designed or produced for the 16 inch JJ rim. (Original equipment use of 16 inch passenger car tires included in Standard No. 109 tire tables was discontinued during the mid 1950s, and the JJ rim contour was not introduced until 1967.)

The Michelin 195/60R390 and 180/65R390 tires with their associated 390 mm JM or TR rims were not submitted for testing. However, the results of the tests performed on the Michelin and the Goodyear tires submitted and on their associated rims are conclusive with respect to the intermix potential of these two proposed Michelin tires and rims. This is because all four tires and associated rims are the same with respect to the variables found to be critical in preventing inappropriate intermixing of the tested tires and rims. The critical variables are: the nominal diameter of the tire and rim, or 390 mm for all four tires and associated rims; rim contour, e.g., TR or JM, which determines well-depth; and tire "flutes" molded into the tire bead. The nominal diameters of the tire and rim of the fourth Michelin tire requested, the 180/65R365 (365 mm), and of the requested Dunlop tire, the P195/65R370 (370 mm), are different from those tested. Another difference characterizing the Dunlop tire is the proposed DL rim contour. Therefore the NHTSA tests conducted to date are not conclusive as to whether either of these two tires and their associated rims can be intermixed with existing rims and tires, or intermixed one with the other, and if so, what any consequences of any such intermix might be.

The agency decided to proceed with final rulemaking action on all of the 390 mm tires proposed. The agency decided to defer final rulemaking on the 370 mm Dunlop tire and the 365 mm Michelin tire until agency intermix tests are performed on these tires.

*The Michelin Tires: Information Submitted for Inclusion in Appendix A Tire Tables.* The bases for accepting or denying requests to add new tire size designations to Table I of Appendix A of Standard No. 109 are set forth in intro-

ductory guidelines to the appendix (October 5, 1968, 33 FR 14964, as amended May 4, 1971, 36 FR 8298; July 22, 1971, 36 FR 13601; August 13, 1974, 39 FR 28980). In sum, the tests are appropriateness of the values submitted for inclusion in the tire tables, and appropriateness of the requested location within the tables of the requested tires.

As discussed in the April 3 Michelin notice, GM objected to the absence of a prefix "P" for 4 of the 5 new tire sizes requested by Michelin published in the February 6 Michelin notice. GM urged that this prefix be made mandatory to distinguish International Standards Organization (ISO) metric tire size designations from other metric tire size designations. The ISO standard for "Passenger car tyres and rims (Future series) Part 1: Tyres" states:

This symbol ("P") may be used where there may be ambiguity regarding the tyre type. Where the optional marking is used, it should be so positioned that confusion cannot result from its proximity to any other service condition marking.

GM's comments noted that according to the practice of the T&RA, the prefix "P" is required to distinguish ISO metric size designations from other metric designations, even though the ISO standard makes use of the prefix optional. The NHTSA is of course not bound by the standards or practice of either organization. Neither the ISO nor the T&RA submitted comments discussing long-range effects of mandating the use of the prefix. Neither GM nor anyone else elaborated a rationale for preferring the T&RA practice to the ISO standard. Further, Michelin's response to the GM comment asserted that the tires requested in the April 3 Michelin notice have been and are currently marketed in Europe, where they are not designated by the prefix "P". In the absence of any rationale for mandating nomenclature to distinguish ISO metric tire designations from other metric tire sizes, in the absence of any data on or discussion of any ambiguity resulting from the nomenclature as proposed, and in the interest of maintaining consistency between European and U.S. nomenclature for the tire, the agency concludes that the absence of the prefix "P" is not inappropriate.

This conclusion is consistent with the fact that Table I-Y in Appendix A already lists a metric tire size designation which does not use the prefix "P". (195 60R350) Therefore, the agency accepts the tire size nomenclature requested by Michelin, as proposed.

Armstrong objected to the inclusion of the Michelin 195 60R390 and P205 60R390 tires as not being compatible with existing Standard No. 109 tire tables and as not having been approved by any technical standardizing body. Michelin subsequently withdrew its request to add the P205 60R390 tire to the standard. Under Appendix A guidelines, the test of compatibility is applicable to requests for addition of new tire sizes to existent tire tables. Where, as here, additional new tables for new tire construction are requested, the applicable test is "adequate justification" for the new tables. The NHTSA finds that there is adequate justification for the proposed new tables I-XX and I-PP precisely because the constructions of the new metric tires requested for inclusion in the new tables are distinguishable from those of tires in existing tables. Appendix A guidelines do not require approval of requested tire sizes by a recognized technical standardizing body, but only "A statement as to whether the tire size designation has been coordinated with" the organizations listed (guideline  $\equiv$  4). Michelin submitted such a statement with respect to its requested metric tire size designations.

In the April 3 Michelin notice, the NHTSA requested comments on the alternative use of JM and TR rim profiles in conjunction with any of the requested Michelin metric tires, as proposed in that notice. JM is a metric rim profile established by the T&RA (October 7, 1977, "Design Guide of Tire and Rim Association"). TR is a metric rim profile established by the European Tyre and Rim Technical Organization (ETRTO) (1978 ETRTO Data Book, p. RP.11). Armstrong commented that the concurrent existence of the JM and TR rims on the market would entail potential safety-related consequences. Armstrong asserted that the "snap-in" valve used for the JM rim, with its 8.9mm (.350 inch) diameter valve hole specification, could accidentally be fitted into the TR valve hole, with its 10.9mm (.434 inch) diameter specification. The result

would be loss of inflation pressure. Michelin has subsequently informed the NHTSA that it will petition the ETRTO to adopt a 8.9mm diameter valve hole dimension for the TR rim.

No commenter specifically addressed the issue of the alternative use of the JM and TR rim contours. NHTSA analysis of these contours indicates that, with the Michelin change to the 9mm valve hole dimension, the remaining differences between the two rims are insignificant in terms of their equivalent appropriateness for use in mounting any of the metric size tires requested by Michelin.

Armstrong raised a number of points alleged to safety-related weaknesses in the "snap-in" valve design of the JM rim. In comments on the February 6 Michelin notice, Armstrong had alleged that safety problems could also arise from the potential accidental installation of an English-unit valve in the TR valve hole, resulting in loss of inflation pressure. Such considerations of the potential consequences of the use of the rims requested in conjunction with the requested new tire size designations fall outside the permissible bases of agency denial of requests to amend Appendix A tire tables. The appropriate course of action is to submit a petition for rule-making to establish or amend a standard to address the issues. Accordingly, the alternative use of the JM and TR rims in conjunction with the proposed Michelin tires is adopted, as proposed.

*The Goodyear Tire: Fuel Economy, Vehicle Rule and Handling, and Labeling.* The amendment of Standard No. 109 as proposed in the Goodyear-RMA notice would increase the maximum permissible inflation pressure permitted under the standard to 300 kPa (44 psi) and make conforming amendments throughout the standard to establish test criteria to enable conducting the standard's various performance tests on the proposed tire. The notice proposed that tire performance tests be established at the same load levels as prescribed for the 240 kPa (35 psi) tire, based on the agency's tentative conclusion that these load levels represent test conditions more severe than would result from utilization of a higher test inflation pressure, so that the safety of the tire is better assured. No comments were submitted addressing this point. Accordingly, the agency adopts these amendments as proposed.

The Goodyear new tire size designation P215 65R390 meets the criteria set forth in introductory guidelines to Appendix A for adding new tire sizes to Appendix A tire tables. Accordingly, the proposed amendment of Appendix A of Standard No. 109 adding this new tire size is adopted, as proposed.

Comments and data were submitted on the issue of the potential of the proposed higher inflation pressure tires to enable improved fuel economy in vehicle use compared to the potential of existing tires to enable improved vehicle fuel economy when tested under higher inflation pressures. All commenters agreed that the higher inflation pressure design of the requested Goodyear tire provides lowered rolling resistance, which enables improved fuel economy in vehicle use. Other comments and data were submitted in regard to ride quality and handling characteristics of vehicles using the proposed higher inflation pressure tires. All of these comments relate to issues which fall outside the ambit of Appendix A.

GM submitted that the addition of the Goodyear tire to Standard No. 109 necessitated an amendment of the labeling requirements of S4.3 of the standard to specify pressure at maximum load rating, in order to distinguish this pressure from maximum permissible inflation pressure where these two values do not correspond. Standard No. 109 requires labeling of maximum load rating and of maximum permissible inflation pressure. With respect to existing tires, values for maximum load rating and for maximum permissible inflation pressure always correspond. With respect to the Goodyear tire, there may be several inflation pressures for the maximum load rating. However, the maximum permissible inflation pressure for the Goodyear tire is always an appropriate inflation pressure for the maxi-

mum load rating. The labeling requirements do not purport to cover all possible inflation pressures and load ratings, but only the most extreme (i.e. "maximum") conditions under which it is safe to operate a tire. Since the information on these maximum conditions for inflation pressure and load ratings must be labeled on the Goodyear tire, it is unnecessary to amend the labeling requirements as requested.

In accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(c)) and Executive Order 12044, the NHTSA has reviewed the environmental and economic impacts of these amendments. There should be no negative environmental impacts. Further, since these are minor technical amendments of the standard which will permit the production of four new tire sizes, there should be no costs associated with their implementation. The agency has further concluded that this is not a significant regulation within the meaning of the Executive Order.

In consideration of the foregoing, Title 49 of the Code of Federal Regulations, Part 571.109 (Standard No. 109, *New Pneumatic Tires-Passenger Cars*) is amended. . . .

The principal authors of this notice are Arturo Casanova of the Crash Avoidance Division, John Diehl of the Tire Performance Group, and Nancy Eager of the Office of Chief Counsel.

(Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on May 30, 1978.

Howard Dngoff  
Acting Administrator

**43 F.R. 24310-24314**  
**June 5, 1978**



**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 78-03; Notice 5)**

Pursuant to petitions by the European Tyre and Rim Technical Organisation (ETRTO) and by the Rubber Manufacturers Association (RMA), this notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding ten new tire size designations to Table I of Appendix A of the standard. The amendment permits the introduction into interstate commerce of the new tire sizes.

*Effective date:* 30 days from publication in the FEDERAL REGISTER, if objections are not received prior to that date.

*Address:* Comments should refer to the docket number and be submitted to Room 5108, Nassif Building, 400 Seventh Street, S.W., Washington, D.C. 20590.

*For further information contact:*

John Diehl, Office of Automotive Ratings,  
National Highway Traffic Safety Administration,  
400 Seventh Street, S.W., Washington,  
D.C. 20690, 202-426-1714.

*Supplementary information:* According to agency practice, the National Highway Traffic Safety Administration (NHTSA) responds to petitions for adding new tire sizes to Table I of Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rulemaking procedure for expediting such routine amendments. Guidelines for this procedure (October 5, 1968, 33 FR 14964, as amended May 4, 1971, 36 FR 8298; July 22, 1971, 36 FR 13601; and August 13, 1974, 39 FR 28980) provide that these final rules become effective 30 days after their date of publication if no comments objecting to them are received by

the agency during this 30-day period. If objections are received, regular rulemaking procedures for issuing and amending motor vehicle safety standards (49 CFR Part 553) are to be initiated.

On March 20, 1978, the ETRTO petitioned for the addition of four new English-unit tire size designations to existing tables within Table I of Appendix A of Standard No. 109. On (April 11, 1978, April 25, 1978, May 25, 1978, and June 16, 1978) the RMA petitioned for the addition of six new English-unit tire size designations to existing tables within Table I of Appendix A of Standard No. 109. The bases for accepting or denying requests to add new tire size designations are set forth in introductory guidelines to the appendix (October 5, 1968, 33 FR 14964, as amended May 4, 1971, 36 FR 8298; July 22, 1971, 36 FR 13601; and August 13, 1974, 39 FR 28980). In sum, the tests are appropriateness of the information submitted for inclusion in the tire tables, and appropriateness of the requested location within the tables of the requested tire sizes. The ten new tire size designations requested to be added to Standard No. 109 meet these criteria. Accordingly, the ETRTO and the RMA petitions are granted, and the ten new tire size designations are added to Table I of Appendix A of the standard pursuant to the abbreviated rulemaking procedure.

In accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(c)) and Executive Order 12044, the NHTSA has reviewed the environmental and economic impacts of these amendments. There should be no negative environmental impacts. Further, since these are minor technical amendments of the standard which will permit the production of four new

tire sizes, there should be no costs associated with their implementation. The agency has further concluded that this is not a significant regulation within the meaning of the Executive Order.

In consideration of the foregoing, Title 49 of the Code of Federal Regulations (Part 571.109 (Standard No. 109, *New Pneumatic Tires—Passenger Cars*)) is amended. . . .

All comments submitted must be limited to 15 pages in length. Necessary attachments may be appended to these submissions without regard to the 15-page limit. This limitation is intended to encourage commenters to detail their primary arguments in a succinct and concise fashion. It is requested but not required that 10 copies of comments be submitted.

If a commenter wishes to submit certain information under a claim of confidentiality, three copies of the complete submission, including purportedly confidential information, should be submitted to the Chief Counsel, NHTSA, at the address given above, and seven copies from which the purportedly confidential information has been deleted should be submitted to the Docket Section. Any claim of confidentiality must be supported by a statement demonstrating that the information falls within 5 U.S.C. Section 552(b) (4), and that disclosure of the information is likely to

result in substantial competitive damage; specifying the period during which the information must be withheld to avoid that damage; and showing that earlier disclosure would result in that damage. In addition, the commenter or, in the case of a corporation, a responsible corporate official authorized to speak for the corporation must certify in writing that each item for which confidential treatment is requested is in fact confidential within the meaning of section 552(b) (4) and that a diligent search has been conducted by the commenter or its employees to assure that none of the specified items has previously been released to the public.

The principal authors of this notice are John Diehl of the Tire Performance Group and Nancy Eager of the Office of Chief Counsel.

(Sec. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on September 25, 1978.

Michael M. Finkelstein  
Acting Associate Administrator  
for Rulemaking

**43 F.R. 45366**  
**October 2, 1978**

**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 78-17; Notice 11)**

Pursuant to petitions by the Michelin Tire Corporation (Michelin) and by the Rubber Manufacturers Association (RMA), this notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding four new tire size designations to Table I of Appendix A of the standard. The amendment permits the introduction into interstate commerce of the new tire sizes.

*Effective date:* 30 days from publication in the FEDERAL REGISTER, if objections are not received prior to that date.

*Address:* Comments should refer to the docket number and be submitted to Room 5108, Nassif Building, 400 Seventh Street, S.W., Washington, D.C. 20590.

*For further information contact:*

John Diehl, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-1714).

*Supplementary information:* According to agency practice, the National Highway Traffic Safety Administration responds to petitions for adding new tire sizes to Table I of Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rulemaking procedure for expediting such routine amendments.

On July 13, 1978, Michelin petitioned for the addition of two new tire size designations requested to be located in a new table, I-QQ within Appendix A of Standard No. 109. On July 18, 1978, and August 3, 1978, the RMA petitioned for the addition of two new tire size designations to existing tables within Table I of Appendix A

of the standard. The bases for accepting or denying requests to add new tire size designations are set forth in introductory guidelines to the appendix (October 5, 1968, 33 FR 14964, as amended May 4, 1971, 36 FR 8298; July 22, 1971, 36 FR 13601; and August 13, 1974, 39 FR 28980). The four new tire size designations requested to be added to Standard No. 109 meet these criteria. Accordingly, the Michelin and the RMA petitions are granted, and these new tire size designations are added to Table I of Appendix A of the standard pursuant to the abbreviated rulemaking procedure.

In accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(c) and Executive Order 12044, the NHTSA has reviewed the environmental and economic impacts of these amendments. There should be no negative environmental impacts. Further, since these are minor technical amendments of the standard which will permit the production of four new tire sizes, there should be no costs associated with their implementation. The agency has further concluded that this is not a significant regulation within the meaning of the Executive Order.

In consideration of the foregoing, Title 49 of the Code of Federal Regulations (Part 571.109 (Standard No. 109, *New Pneumatic Tires—Passenger Cars*)) is amended, . . .

All comments must be limited not to exceed 15 pages in length. Necessary attachments may be appended to these submissions without regard to the 15-page limit. This limitation is intended to encourage commenters to detail their primary arguments in a succinct and concise fashion. It is requested but not required that 10 copies of comments be submitted.

If a commenter wishes to submit certain information under a claim of confidentiality, three copies of the complete submission, including purportedly confidential information, should be submitted to the Chief Counsel, NHTSA, at the address given above, and seven copies from which the purportedly confidential information has been deleted should be submitted to the Docket Section. Any claim of confidentiality must be supported by a statement demonstrating that the information falls within 5 U.S.C. section 552(b) (4), and that disclosure of the information is likely to result in substantial competitive damage; specifying the period during which the information must be withheld to avoid that damage; and showing that earlier disclosure would result in that damage. In addition, the commenter or, in the case of a corporation, a responsible corporate official authorized to speak for the corporation must certify in writing that each item for which confidential treatment is requested is in fact confidential within the meaning of section 552(b) (4) and that a diligent search

has been conducted by the commenter or its employees to assure that none of the specified items has previously been released to the public.

All comments received before the close of business on the comment closing date indicated above will be considered, and will be available for examination in the docket at the above address both before and after that date.

The principal authors of this notice are John Diehl of the Office of Vehicle Safety Standards and Nancy Eager of the Office of Chief Counsel.

(Sec. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.)

Issued on November 27, 1978.

Michael M. Finkelstein  
Associate Administrator  
for Rulemaking

**43 F.R. 56668-56671**  
**December 4, 1978**

**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires for Passenger Cars**

**(Docket No. 79-01; Notice 1)**

*Action:* Final rule.

*Summary:* Pursuant to petitions by the Rubber Manufacturers Association (RMA), European Tyre and Rim Technical Organisation (ETRTO), and Michelin Tire Corporation (Michelin), this notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding certain tire size designations to Appendix A of the standard. This amendment permits the introduction into interstate commerce of the new tire sizes.

*Effective date:* 30 days from the date of publication in the FEDERAL REGISTER, if objections are not received before that date.

*Address:* Comments should refer to Docket 79-01 and be submitted to Docket Section, Room 5108, 100 Seventh Street, S.W., Washington, D.C. 20590.

*For further information contact:*

John Diehl, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-1711).

*Supplementary information:* According to agency practice, the National Highway Traffic Safety Administration (NHTSA) responds to petitions for adding new tire sizes to Table 1 of Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rulemaking procedure for expediting such routine amendments. Guidelines for this procedure were published at 33 FR 11961, October 5, 1968 and amended at 36 FR 8298, May 4, 1971; 36 FR 13601, July 22, 1971; and 39 FR 28980, August 13, 1974. These guidelines provide that these

final rules become effective 30 days after their date of publication if no comments objecting to them are received by the agency during this 30 day period. If objections are received, regular rulemaking procedures for issuing and amending motor vehicle safety standards are initiated.

ETRTO petitioned for the addition of a new tire size to an existing table within Table I of Appendix A of Standard No. 109 on September 28, 1977. On October 24, 1978, Michelin petitioned for the addition of a new P-metric series tire size to an existing table within Table I of Appendix A of Standard No. 109. On November 1, 1978, and December 1, 1978, RMA filed petitions requesting the addition of five new P-metric tire sizes to the existing tables. The basis for accepting or denying requests to add new tire size designations is set forth in introductory guidelines to the appendix. Briefly, the tests are the appropriateness of the information submitted for inclusion in the tire tables, and appropriateness of the requested location within the tables of the requested tire sizes. The seven new tire size designations requested to be added to Standard No. 109 appear to meet these criteria. Accordingly, the Michelin, ETRTO, and RMA petitions are granted, and the seven new tire size designations are added to Table I of Appendix A of the standard pursuant to the abbreviated rulemaking procedure.

In consideration of the foregoing, 49 CFR § 571.109 is amended . . . subject to the 30 day comment period outlined above.

Interested persons are invited to submit comments on these additions. Comments must be limited so as not to exceed 15 pages in length. Necessary attachments may be appended to these

submissions without regard to the 15 page limit. This limitation is intended to encourage commenters to detail their primary arguments in a succinct and concise fashion.

The agency has reviewed the impacts of this proposal and determined that they are minimal and that this is not a significant regulation within the meaning of Executive Order 12044.

The program official and attorney principally responsible for the development of this notice are John Diehl and Stephen Kratzke, respectively.

**AUTHORITY:** Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.

Issued on February 21, 1979.

Michael M. Finkelstein  
Associate Administrator  
for Rulemaking

**44 F.R. 11549**  
**March 1, 1979**

**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 77-02; Notice 71)**

*Action:* Final rule.

*Summary:* This notice grants in part and denies in part a petition submitted by the Japan Automobile Tire Manufacturers Association requesting the addition of two new tire size designations to Appendix A of Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*. The requested sizes have been redesignated using the alpha numeric system, because if the metric system were used, the values given for these tires would differ from those agreed upon by the International Organization for Standardization. When the alpha numeric system of designating tire sizes is used, one of the requested tire sizes duplicates a size currently included in the Appendix. Inclusion of that size again is unnecessary and therefore the request is denied. The request for inclusion of the other tire size is granted. Promulgation of this final rule permits the introduction of that size into interstate commerce.

*Effective date:* May 10, 1979.

*For further information contact:*

John Diehl, Office of Automotive Ratings,  
Crash Avoidance Division, National Highway  
Traffic Safety Administration, 400  
Seventh Street, S.W., Washington, D.C.  
20590 (202-426-1714).

*Supplementary information:* According to agency practice, the National Highway Traffic Safety Administration (NHTSA) respond to petitions for adding new tire sizes to Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rulemaking procedure for expediting such routine amendments. Guidelines for this procedure (33 FR

14964, October 5, 1968, as amended at 39 FR 28980, August 13, 1974) provide that these final rules become effective 30 days after their date of publication if no comments objecting to them are received by NHTSA during this 30-day period. If objections are received, rulemaking procedures for proposing and issuing motor vehicle safety standards (49 CFR Part 553) are to be initiated.

Pursuant to a petition from the Japan Automobile Manufacturers Association (July 26, 1977), a final rule amending Appendix A by adding two new tire size designations was published at 42 FR 62386, December 12, 1977, using the abbreviated rulemaking procedure. An objection to this amendment was timely submitted by General Motors Corp. (GM) on January 11, 1978. Accordingly, the amendment did not become effective.

NHTSA published a notice of proposed rulemaking on this addition at 43 FR 22420, May 25, 1978. In response to that notice, comments on the proposed tire sizes were submitted by GM and the B.F. Goodrich Company (Goodrich).

The petition had requested that two tire sizes, 225 60R13 and 225 60R14, be added to the appendix. GM and Goodrich both commented that the proposed millimetric 225 60R14 size designation was already included in Table I-R, under the alpha numeric designation of DR 60-14. A millimetric size designation describes the tire's cross-section width in millimeters, while the alpha numeric system describes the tire's cross-section width in inches. All the tire loads and other values for the requested 225 60R14 tire size were identical with those already listed for the DR 60-14 size. The commenters suggested that it would be most appropriate for NHTSA to add the values for the requested 225 60R13 size, but

designate this size as DR 60-13, and deny the request with respect to the 225/60R14 size, since that size already appears in the tables.

There were two reasons offered in the comments for redesignating the requested tire sizes from 225/60R13 and 225/60R14 to DR 60-13 and DR 60-14. First, according to the commenters, the test rim widths and section widths requested by the petitioner for those tire sizes did not agree with the test rim widths and section widths agreed upon for those size tires by the International Organization for Standardization. Second, the commenters stated that consistency with international standardization efforts required the load values for the requested sizes to be expressed in kilograms and kilo Pascals, rather than in pounds and pounds per square inch, as proposed. There would be no inconsistency with the international standardization efforts for tire size designations if the tire sizes were redesignated as shown above.

NHTSA concurs with the suggestion that the international standardization of tire size designations is a desirable goal. When this can be promoted without any unduly great burden to the manufacturers or the public, NHTSA will generally follow this course. With respect to this petition, a redesignation of the tire sizes does not impose any significant burden on the manufacturers. The redesignation allows the tires to be sold without any further computation of values or testing by the manufacturer. Therefore, the benefits to be gained from harmonization of tire

size designations outweighs the minimal burden imposed on the manufacturer by having to redesignate these tire sizes.

With this redesignation, the requested new tire sizes 225/60R13 and 225/60R14 become DR 60-13 and DR 60-14. The request for the DR 60-13 size is granted with the values proposed in the notice of proposed rulemaking for the 225/60R13 size. The request for the DR 60-14 size is denied, because that size is already included in Table I-R of the Appendix to Standard No. 109.

In consideration of the foregoing, Title 49 of the Code of Federal Regulations, Part 571.109 is amended. . . .

NHTSA has reviewed this rule and determined that it is not a significant regulation within the meaning of Executive Order 12044. Further this action does not require an environmental impact statement under the National Environmental Policy Act (49 U.S.C. 4321 *et seq.*).

The program official and attorney principally responsible for the development of this rule are John Diehl and Stephen Kratzke, respectively.

**AUTHORITY:** Secs. 103, 109, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegation of authority at 49 CFR 1.50.

Issued on May 1, 1979.

Joan Claybrook  
Administrator

**44 F.R. 27395**  
**May 10, 1979**



**PREAMBLE TO AMENDMENT TO  
FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 78-03; Notice 6; Docket No. 78-04; Notice 3)**

*Action:* Final rule.

*Summary:* This notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding two new metric tire size designations to Appendix A of that Standard. These amendments are made in response to petitions by Michelin Tire Corporation and the Rubber Manufacturers Association (RMA). Issuance of this notice permits the introduction of these metric tire sizes into interstate commerce.

*Effective date:* May 10, 1979.

*For further information contact:*

Arturo Casanova, Crash Avoidance Division,  
Office of Vehicle Safety Standards, National  
Highway Traffic Safety Administration, 400  
Seventh Street, S.W., Washington, D.C.  
20590 (202-426-1715).

*Supplementary information:* This notice establishes a final rule with respect to two separate rulemaking actions, one initiated pursuant to a petition by RMA and the other initiated pursuant to a petition by Michelin Tire Corporation (Michelin). In response to a petition by RMA (January 17, 1978) supporting a Dunlop tire which would use a higher inflation pressure and is designed to be retained on the tire rim in the event of rapid tire deflation, the National Highway Traffic Safety Administration (NHTSA) published a notice of proposed rulemaking at 43 FR 8570, March 2, 1978. That notice also proposed the addition of a Goodyear tire designed to use a higher inflation pressure. Several comments objecting to the inclusion of these tires in Table I of Appendix A of Standard No. 109 were received by NHTSA.

In response to a petition by Michelin (October 3, 1977) requesting the addition of new metric tire size designations, NHTSA published a routine amendment to Table I at 43 FR 4860, February 6, 1978. Under the procedures established by NHTSA for routine tire table amendments (33 FR 14964, October 5, 1968, as amended by 39 FR 28980, August 31, 1974), new size designations are published as a final rule which becomes effective 30 days after publication in the *FEDERAL REGISTER*, unless objections are received before the expiration of that 30-day period. Objections were received, so the sizes were not added. Subsequently, NHTSA published a notice of proposed rulemaking to include these sizes in Table I of Appendix A of Standard No. 109: 43 FR 13903, April 3, 1978.

NHTSA resolved the issues raised by the comments on the inclusion of the Goodyear tire and all but one of the Michelin tire sizes, and published a final rule for these tire sizes at 43 FR 24310, June 5, 1978. In that rule, NHTSA indicated that it would publish separately a final rule dealing with the Dunlop and remaining Michelin tire sizes. This notice sets forth a final rule for those sizes.

Comments objecting to the addition of these two tire size designations alleged that "intermix" or "mismatch" problems could accidentally occur when replacing a tire on a vehicle. Some of the commenters asserted that, because the nominal diameters of the proposed metric tires and corresponding metric rims (365mm and 370mm) are very nearly the same as those of certain existing English-unit tire/rim diameters (14 inch and 15 inch), it would be technically possible to mount an English-unit tire on the requested metric unit rim, or conversely, to mount a metric unit tire on

an existing English-unit rim. Some commenters alleged that serious safety problems, such as tire explosions during, or road failures shortly after tire mounting could occur as a result of such intermixing. General Motors (GM) and the Armstrong Rubber Company (Armstrong) directed such allegations to both tires in this notice and the Department of California Highway Patrols directed its objection to the Michelin request. However, none of the objections summarized above were supported by data demonstrating that the safety hazards alleged had occurred or even that they could occur.

GM requested that the NHTSA defer action on all the proposed new tire sizes for one year to allow the tire and vehicle industries to work out a general solution to potential intermix problems raised by these and other metric tires. Dunlop requested that NHTSA take no final action on the tires proposed without considering the potential safety hazards involved. The Department of California Highway Patrol recommended that the trend toward proliferation of passenger car tire sizes be halted in view of the potential safety problems discussed above. Mercedes-Benz asserted that the differences among the proposed tires were sufficient to prevent intermix, but that the anticipated introduction of additional tire-rim combinations raised the possibility of mismatch problems. Mercedes stated that the anticipated proliferation of metric tire sizes raised the prospect that the spare parts industry might not expand quickly enough to meet after-market needs, in view of the fact that a vehicle owner would need to replace the tires on the vehicles with the same type of tires originally mounted thereon. Mercedes suggested that NHTSA encourage the development of uniform and interchangeable tires and rims. Armstrong objected to the Michelin proposal because of alleged confusion of the public and tire service personnel arising from the slight dimensional differences in metric and English unit tire rim combinations.

With respect to this larger issue of general standardization of tires sizes, NHTSA believes it is not necessary to resolve it before permitting these tire sizes to be introduced. As explained below, the intermix problem has been alleviated with respect to these particular tire sizes. Since

this is the case, it is inappropriate to delay the introduction of these sizes while awaiting a resolution of the larger issue.

In the June 5, 1978, notice establishing a final rule for the Goodyear tire and the 390mm Michelin tires, the agency indicated that it would defer final rulemaking on the Michelin 365mm tire and the Dunlop 370mm tire until agency intermix tests were performed on these tires. NHTSA subsequently conducted its own intermix tests at this agency's Safety Research Laboratory in Riverdale, Maryland. These tests indicated that these two tire sizes would not present the alleged intermix problems. Both Dunlop and Michelin have incorporated a design feature, called "blow-by", in the bead seat area which will not allow intermixing. "Blow-by" consists of flutes molded onto the lower bead area of the tire which bleed out air in the event the tire is not mounted on the proper rim. Hence, if one of these tires were mounted on an English-unit rim, the tires would not be able to hold air. In addition, the Michelin 365mm tire and rim concept cannot be intermixed with Dunlop 370mm tire and rim concept and vice versa. Since this feature precludes any intermix problems, and no commenter raised any other issues regarding these tire sizes, NHTSA is proceeding with final rulemaking action on these proposed tire sizes.

In consideration of the foregoing, 49 CFR § 571.109 is amended. . . .

The agency has reviewed the impacts of this rule and determined that they are minimal and that this is not a significant regulation within the meaning of Executive Order 12041.

The program official and attorney principally responsible for the development of this rule are Arturo Casanova and Stephen Kratzke, respectively.

**AUTHORITY:** Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegation of authority at 49 CFR 1.51.

Issued on May 2, 1979.

Joan Claybrook  
Administrator

**44 F.R. 27394**  
**May 10, 1979**

**PREAMBLE TO AMENDMENT TO APPENDIX A OF  
FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109**

**New Pneumatic Tires—Passenger Cars**

**(Docket No. 79-01; Notice 2)**

*Action:* Final rule.

*Summary:* Pursuant to petitions by the Rubber Manufacturers Association (RMA), European Tyre and Rim Technical Organisation (ETRTO), and Michelin Tire Corporation (Michelin), this notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding certain tire size designations to Appendix A of that standard. This amendment permits the introduction into interstate commerce of the new tire sizes.

*Effective date:* 30 days from the date of publication in the FEDERAL REGISTER, if objections are not received before that date, June 9, 1979. **ADDRESS:** Comments should refer to Docket 79-01 and be submitted to Docket Section, Room 5108, 400 Seventh Street, S.W., Washington, D.C. 20590.

*For further information contact:*

John Diehl, Office of Automotive Ratings,  
National Highway Traffic Safety Administration,  
400 Seventh Street, S.W., Washington,  
D.C. 20590 (202-426-1714).

*Supplementary information:* According to agency practice, the National Highway Traffic Safety Administration (NHTSA) responds to petitions for adding new tire sizes to Table I of Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rulemaking procedure for expediting such routine amendments. Guidelines for this procedure were published at 33 FR 14964, October 5, 1968, and amended at 36 FR 8298, May 4, 1971; 36 FR 13601, July 22, 1971; and 39 FR 28980, August 13, 1974. These guidelines provide that these

final rules become effective 30 days after their date of publication if no comments objecting to them are received by the agency during this 30 day period. If objections are received, regular rulemaking procedures for issuing and amending motor vehicle safety standards are initiated.

On December 19, 1978, RMA petitioned for the addition of three new tire sizes to an existing table within Table I of Appendix A of Standard No. 109. RMA petitioned for the addition of seven new tire sizes to an existing table on January 23, 1979. RMA also petitioned on January 24, January 26, January 29, and February 1, 1979, for the addition of four other tire sizes to Table I. ETRTO petitioned on November 3, 1978, for the addition of a new table to Table I, and for three new tire sizes to be included in that table. ETRTO also petitioned on February 21, 1979 for the addition of five new tire sizes to existing tables in Table I. Michelin petitioned on January 19, 1979, for the addition of a new tire size to an existing table. The bases for accepting or denying requests to add new tire size designations are set forth in the introductory guidelines to Appendix A. Briefly, the tests are the appropriateness of the information submitted for inclusion in the tire tables, and the appropriateness of the requested location within the tables of the requested tire sizes. The 24 new tire size designations requested to be added to Standard No. 109 appear to meet these criteria. Accordingly, the Michelin, ETRTO, and RMA petitions are granted, and 23 new tire sizes designations are added to Table I of Appendix A of the standard pursuant to the abbreviated rulemaking procedure.

In consideration of the foregoing, 49 CFR § 571.109 is amended . . . subject to the 30-day comment period outlined above.

Interested persons are invited to submit comments on these additions. Comments must be limited so as not to exceed 15 pages in length. Necessary attachments may be appended to these submissions without regard to the 15-page limit. This limitation is intended to encourage commenters to detail their primary arguments in a succinct and concise fashion.

The agency has reviewed the impacts of this rule and determined that they are minimal and that this is not a significant regulation within the meaning of Executive Order 12044.

The program official and attorney principally responsible for the development of this rule are John Diehl and Stephen Kratzke, respectively.

**AUTHORITY:** Secs. 103, 119, 201, and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421, and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.

Issued on May 2, 1979.

Michael M. Finkelstein  
Associate Administrator  
for Rulemaking

**44 F.R. 27396**  
**May 10, 1979**

## PREAMBLE TO APPENDIX A OF FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109

### New Pneumatic Tires for Passenger Cars

(Docket No. 79-01; Notice 3)

*Action:* Final rule.

*Summary:* Pursuant to petitions by the Rubber Manufacturers Association (RMA), and Dunlop Tire and Rubber Corporation (Dunlop), this notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding certain tire size designations to Appendix A of that standard. This amendment permits the introduction into interstate commerce of the new tire sizes.

*Effective Date:* October 4, 1979 if objections are not received before that date.

*Address:* Comments should refer to Docket No. 79-01 and be submitted to Docket Section, Room 5108, 400 Seventh Street, S.W., Washington, D.C.

#### *For Further Information Contact:*

John Diehl, Office of Automotive Ratings,  
National Highway Traffic Safety Administration,  
400 Seventh Street, S.W., Washington,  
D.C. 20590 (202-426-1714).

*Supplementary Information:* According to agency practice, the National Highway Traffic Safety Administration (NHTSA) responds to petitions for adding new tire sizes to Table I of Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rulemaking procedure for expediting such routine amendments. Guidelines for this procedure were published at 33 FR 14964, October 5, 1968, and amended at 36 FR 8298, May 4, 1971; 36 FR 13601, July 22, 1971; and 39 FR 28980, August 13, 1974. These guidelines provide that these final rules become effective 30 days after their date of publication if no comments objecting to them are received by NHTSA during this 30 day period. If objections are received, regular

rulemaking procedures for issuing and amending motor vehicle safety standards are initiated.

On March 22, 1979, RMA petitioned for the addition of a new tire size to an existing table within Table I of Appendix A of Standard No. 109. RMA also petitioned on March 28, June 4, June 19, and June 28, 1979, for the addition of five other tire sizes to existing tables in Table I. Dunlop petitioned on April 6, 1979, for the addition of a new table to Table I, and for a new tire size to be included in that table. The bases for accepting or denying requests to add new tire size designations are set forth in the introductory guidelines to Appendix A. Briefly, the tests are the appropriateness of the information submitted for inclusion in the tire tables, and the appropriateness of the requested location within the tables of the requested tire sizes. The seven new tire size designations requested to be added to Standard No. 109 appear to meet these criteria. Accordingly, the Dunlop and RMA, petitions are granted, and seven new tire sizes are added to Table I of Appendix A of the standard pursuant to the abbreviated rulemaking procedure.

In consideration of the foregoing, 49 CFR § 571.109 is amended as specified below, subject to the 30-day comment period outlined above....

Interested persons are invited to submit comments on these additions. Comments must be limited so as not to exceed 15 pages in length. Necessary attachments may be appended without regard to the 15 page limit. This limitation is intended to encourage commenters to detail their primary arguments in a succinct and concise fashion.

The agency has reviewed the impacts of this rule and determined that they are minimal and that this is not a significant regulation within the meaning of Executive Order 12044.

The program official and attorney principally responsible for the development of this rule are John Diehl and Stephen Kratzke, respectively.

AUTHORITY: Secs. 103, 119, 201 and 202, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407, 1421 and 1422); delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.

Issued on August 28, 1979.

A. C. Malliaris  
Acting Associate Administrator  
for Rulemaking

**44 F.R. 51603**  
**September 4, 1979**

# **PREAMBLE TO AMENDMENT TO APPENDIX A OF MOTOR VEHICLE SAFETY STANDARD NO. 109**

## **New Pneumatic Tires for Passenger Cars**

**(Docket No. 79-01; Notice 4)**

**ACTION:** Final rule.

**SUMMARY:** Pursuant to petitions by the Rubber Manufacturers Association (RMA) and the European Tyre and Rim Technical Organisation (ETRTO), this notice amends Federal Motor Vehicle Safety Standard No. 109, *New Pneumatic Tires—Passenger Cars*, by adding certain tire size designations to Appendix A of that standard. This amendment permits the introduction into interstate commerce of the new tire sizes.

**EFFECTIVE DATE:** 30 days from date of publication in the Federal Register, if objections are not received before that date. January 16, 1980.

**ADDRESSES:** Comments should refer to Docket No. 79-01 and be submitted to Docket Section, Room 5108, 400 Seventh Street, S.W., Washington, D.C. 20590. (Docket hours 8 a.m. to 4 p.m.)

**FOR FURTHER INFORMATION CONTACT:**

John Diehl, Office of Automotive Ratings, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202) 426-1714.

**SUPPLEMENTARY INFORMATION:** According to agency practice, the National Highway Traffic Safety Administration (NHTSA) responds to petitions for adding new tire sizes to Table I of Appendix A of Standard No. 109 by quarterly issuing final rules under an abbreviated rule-making procedure for expediting such routine amendments. Guidelines for this procedure were published at 33 FR 14964; October 5, 1968, and amended at 36 FR 8298; May 4, 1971; 36 FR 13601; July 22, 1971; and 39 FR 28980; August 13, 1974. These guidelines provide that these final rules become effective 30 days after their date of

publication if no comments objecting to them are received by NHTSA during this 30 day period. If objections are received, regular rulemaking procedures for issuing and amending motor vehicle safety standards are initiated.

On July 9, 1979, RMA petitioned for the addition of a new tire size to an existing table with Table I of Appendix A of Standard No. 109. RMA also petitioned on September 14, September 18, and September 20 for the addition of three other tire sizes to existing tables in Table I. ETRTO petitioned for the addition of two new tire sizes to existing tables on July 16, 1979. The bases for accepting or denying requests to add new tire size designations are set forth in the introductory guidelines to Appendix A. Briefly, the tests are the appropriateness of the information submitted for inclusion in the tire tables, and the appropriateness of the requested location within the tables of the requested tire sizes. The six new tire size designations requested to be added to Standard No. 109 appear to meet these criteria. Accordingly, the RMA and ETRTO petitions are granted, and six new tire sizes are added to Table I of Appendix A of the Standard pursuant to the abbreviated rulemaking procedure.

In consideration of the foregoing, 49 CFR § 571.109 is amended by the addition of new tire size designations and corresponding values to Tables I-R, I-S, I-KK, I-LL, and I-WW.

Interested persons are invited to submit comments on these additions. Comments must be limited so as not to exceed 15 pages in length. Necessary attachments may be appended without regard to the 15 page limit. This limitation is intended to encourage commenters to detail their primary comments in a concise fashion. Those persons desiring to be notified upon receipt of their comments in the rules docket should enclose a self-

addressed, stamped postcard in the envelope with their comments. Upon receiving the comments, the docket supervisor will return the postcard by mail.

The agency has reviewed the impacts of this rule, and determined that permitting the introduction of these tire sizes will benefit those manufacturers desiring to produce the sizes and will have no effect on those manufacturers who do not. The public will be minimally affected by this rule. Accordingly, NHTSA has determined that this is not a significant regulation within the meaning of Executive Order 12044.

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The program official and attorney principally responsible for the development of this rule are John Diehl and Stephen Kratzke, respectively.

Issued on December 7, 1979.

Michael M. Finkelstein  
Associate Administrator  
for Rulemaking

**44 F.R. 73102**  
**December 17, 1979**



APPENDIX A—FEDERAL MOTOR VEHICLE SAFETY STANDARD NO. 109

TABLE I-A

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR CONVENTIONAL AND LOW SECTION HEIGHT BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)	
	16	18	20	22	24	26	28	30	32	34	36	38	40				
6.00-13			770	820	860	900	930	970	1,010	1,040	1,080	1,110	1,140	4	29.37	6.00	
6.50-13			890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	4½	30.75	6.60	
7.00-13			980	1,030	1,080	1,130	1,180	1,230	1,270	1,310	1,360	1,400	1,440	5	31.88	7.10	
6.90-14			840	900	930	980	1,020	1,060	1,100	1,130	1,170	1,210	1,240	4	30.64	6.10	
6.45-14			860	910	960	1,000	1,040	1,080	1,120	1,160	1,200	1,240	1,270	4½	30.92	6.60	
6.50-14			930	990	1,030	1,080	1,130	1,170	1,210	1,250	1,300	1,330	1,370	4	31.75	6.60	
6.95-14			950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,310	1,350	1,390	5	31.96	7.00	
7.00-14			1,030	1,100	1,140	1,190	1,240	1,290	1,340	1,380	1,430	1,470	1,520	5	32.88	7.10	
7.35-14			1,040	1,100	1,160	1,210	1,260	1,310	1,360	1,400	1,450	1,490	1,540	5	32.92	7.30	
7.50-14			1,150	1,230	1,280	1,340	1,390	1,450	1,500	1,550	1,600	1,650	1,700	5½	34.19	7.65	
7.75-14			1,150	1,210	1,270	1,330	1,390	1,440	1,500	1,550	1,600	1,650	1,690	5½	34.09	7.75	
8.00-14			1,240	1,320	1,380	1,440	1,500	1,560	1,620	1,670	1,730	1,780	1,830	6	35.17	8.10	
8.25-14			1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,670	1,730	1,780	1,830	6	35.11	8.20	
8.50-14			1,330	1,420	1,480	1,550	1,610	1,670	1,740	1,790	1,850	1,910	1,960	6	35.91	8.35	
8.55-14			1,360	1,430	1,510	1,580	1,640	1,710	1,770	1,830	1,890	1,950	2,000	6	36.06	8.50	
8.85-14			1,430	1,510	1,580	1,660	1,730	1,790	1,860	1,920	1,990	2,050	2,100	6½	36.82	8.95	
9.00-14			1,430	1,510	1,580	1,660	1,730	1,790	1,860	1,920	1,990	2,050	2,100	6½	36.91	8.80	
9.50-14			1,540	1,640	1,700	1,780	1,850	1,930	2,000	2,060	2,130	2,200	2,260	6½	37.74	9.05	
6.00-15			890	940	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	4	31.64	6.10	
6.50-15			980	1,040	1,080	1,130	1,180	1,230	1,270	1,320	1,360	1,400	1,440	4½	32.75	6.60	
6.70-15			1,110	1,190	1,230	1,290	1,340	1,400	1,450	1,500	1,550	1,590	1,640	4½	33.95	7.00	
6.85-15			950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,390	5	32.48	6.90	
7.00-15		1,170	1,240	1,310	1,380	1,450	1,515	1,580	1,640	1,700	1,760	1,820	1,870	5	36.02	7.35	
7.10-15			1,190	1,270	1,320	1,380	1,440	1,500	1,550	1,600	1,660	1,710	1,760	5	34.89	7.40	
7.35-15			1,070	1,130	1,180	1,240	1,290	1,340	1,390	1,440	1,480	1,530	1,570	5½	33.86	7.50	
7.60-15			1,310	1,400	1,450	1,520	1,580	1,640	1,710	1,760	1,820	1,880	1,930	5½	36.05	7.90	
7.75-15			1,150	1,210	1,270	1,330	1,380	1,440	1,490	1,540	1,590	1,640	1,690	5½	34.53	7.65	
8.00-15			1,380	1,470	1,530	1,600	1,670	1,730	1,800	1,860	1,920	1,980	2,040	6	36.84	8.30	
8.15-15			1,240	1,300	1,370	1,430	1,490	1,550	1,610	1,660	1,720	1,770	1,820	6	35.50	8.15	
8.20-15			1,470	1,570	1,630	1,710	1,780	1,850	1,920	1,980	2,050	2,110	2,170	6	37.50	8.50	
8.25-15		1,030	1,190	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,670	1,730	1,780	6	35.57	8.20	
8.45-15			1,340	1,410	1,480	1,550	1,620	1,680	1,740	1,800	1,860	1,920	1,970	6	36.37	8.35	
8.55-15		1,220	1,290	1,360	1,430	1,510	1,580	1,640	1,710	1,770	1,830	1,890	1,950	6	36.57	8.45	
8.85-15			1,430	1,510	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	6½	37.29	8.80	
8.90-15			1,700	1,810	1,880	1,970	2,050	2,130	2,210	2,290	2,360	2,430	2,500	6½	39.54	9.30	
9.00-15			1,460	1,540	1,620	1,690	1,760	1,830	1,900	1,970	2,030	2,090	2,150	6	37.45	8.50	
9.15-15			1,510	1,600	1,680	1,750	1,830	1,900	1,970	2,030	2,100	2,160	2,230	6½	37.92	9.05	
5.00-16		715	765	815	860	910	975	990	1,030	1,070	1,110	1,150	1,185	1,220	3	31.03	5.15
6.00-16			1,075	1,135	1,195	1,250	1,300	1,350	1,400	1,450	1,500	1,550	1,600	4	34.17	6.25	
6.50-16		1,090	1,150	1,215	1,280	1,345	1,405	1,465	1,525	1,580	1,635	1,690	1,740	4½	35.59	6.80	
6.70-16			1,185	1,240	1,300	1,355	1,410	1,465	1,525	1,580	1,635	1,690	1,740	4½	35.60	7.40	
7.00-16			1,365	1,440	1,515	1,585	1,650	1,715	1,780	1,840	1,900	1,960	2,020	5	37.02	7.35	
7.50-16			1,565	1,650	1,735	1,810	1,890	1,960	2,035	2,105	2,175	2,245	2,315	5½	38.78	8.00	
6.50-17		1,215	1,275	1,330	1,390	1,450	1,500	1,560	1,620	1,680	1,740	1,795	1,850	5	37.00	6.70	
1.84-15			1,510	1,600	1,680	1,750	1,830	1,900	1,970	2,030	2,100	2,160	2,230	6	37.88	8.65	

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash"

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent

TABLE I-B

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "70 SERIES" BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor <sup>2</sup> (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
A70-13	720	770	810	860	900	940	980	1020	1060	1090	1130	1160	1200	5½	30.27	7.30
B70-13	780	840	890	930	980	1030	1070	1110	1150	1190	1230	1270	1300	5	30.46	7.35
C70-13	840	890	950	1000	1050	1100	1140	1190	1230	1270	1320	1360	1400	5½	31.68	7.80
D70-13	890	950	1010	1070	1120	1170	1220	1270	1320	1360	1410	1450	1490	5½	32.34	8.00
E70-14	950	1010	1070	1130	1190	1240	1290	1340	1390	1440	1490	1540	1580	5½	32.81	7.85
F70-14	1020	1080	1140	1200	1260	1310	1360	1410	1460	1510	1560	1610	1650	5½	34.16	8.30
G70-14	1100	1160	1220	1280	1340	1400	1460	1520	1580	1640	1700	1760	1820	6	35.18	8.75
H70-14	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	6	36.19	9.10
J70-14	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	6½	36.87	9.50
L70-14	1340	1400	1460	1520	1580	1640	1700	1760	1820	1880	1940	2000	2060	6½	37.62	9.75
A70-15	720	770	810	860	900	940	980	1020	1060	1090	1130	1160	1200	4½	30.99	6.60
C70-15	840	890	950	1000	1050	1100	1140	1190	1230	1270	1320	1360	1390	5½	32.75	7.50
D70-15	890	950	1010	1070	1120	1170	1220	1270	1320	1360	1410	1450	1490	5½	33.37	7.70
E70-15	950	1010	1070	1130	1190	1240	1290	1340	1390	1440	1490	1540	1580	6	34.13	8.10
F70-15	1020	1080	1140	1200	1260	1310	1360	1410	1460	1510	1560	1610	1650	6	34.89	8.35
G70-15	1100	1160	1220	1280	1340	1400	1460	1520	1580	1640	1700	1760	1820	6	35.66	8.60
H70-15	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	6	36.64	8.95
J70-15	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980	6½	37.36	9.35
K70-15	1290	1350	1410	1470	1530	1590	1650	1710	1770	1830	1890	1950	2010	6½	37.66	9.40
L70-15	1340	1400	1460	1520	1580	1640	1700	1760	1820	1880	1940	2000	2060	6½	38.09	9.60

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-C

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor <sup>2</sup> (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
"Super Balloon" Sizes																
L80-10	320	355	390	430	470	490	510	535	555	575	595	615	635	3½	23.90	5.00
S20-10	350	395	430	485	530	555	575	605	625	650	670	695	715	3½	24.84	5.20
S30-10	385	430	475	515	550	580	605	630	650	675	700	725	750	4	24.00	5.80
S40-12	395	445	495	545	595	625	655	685	710	735	760	785	810	3½	26.79	5.20
S60-12	460	520	575	620	670	715	760	795	825	855	885	915	940	4	27.83	5.71
S80-12	460	505	550	595	640	665	700	730	755	785	810	835	860	4	26.60	5.90
S20-12	505	555	605	655	705	735	775	805	835	865	895	925	955	4½	27.00	6.30
S30-13	430	485	540	590	640	670	710	740	765	795	820	850	875	3½	27.72	5.20
S60-13	445	500	560	615	675	725	770	810	850	880	910	945	975	4	28.92	5.71
S90-13	525	625	695	755	815	860	895	935	970	1,005	1,040	1,075	1,105	4	29.74	5.91
S20-13	520	580	640	700	760	780	820	850	880	910	945	975	1,005	4½	29.60	6.30
S40-13	630	705	785	845	915	945	985	1,025	1,060	1,100	1,140	1,175	1,210	4½	31.26	6.42
S70-13	690	775	860	935	1,000	1,045	1,090	1,135	1,175	1,220	1,260	1,305	1,345	4½	32.14	6.69
S90-13	695	745	795	845	915	955	1,005	1,045	1,085	1,120	1,160	1,200	1,240	5	30.00	7.20
S20-14	475	535	595	645	695	735	785	825	855	885	915	945	975	3½	28.89	5.20
S60-14	530	595	660	715	770	815	855	890	920	955	990	1,020	1,060	4	29.94	5.71
S90-14	585	660	730	785	850	880	925	970	1,005	1,040	1,080	1,115	1,145	4	30.76	5.91
S40-14	660	745	825	890	960	1,000	1,050	1,090	1,130	1,170	1,210	1,250	1,290	4½	32.19	6.42
S60-14	660	745	825	890	960	1,000	1,040	1,080	1,120	1,160	1,200	1,240	1,275	4½	33.02	6.69
S20-15	505	570	630	685	740	780	830	870	900	935	965	1,000	1,030	3½	29.75	5.20
S60-15	555	625	695	755	815	860	895	935	970	1,005	1,040	1,075	1,105	4	30.87	5.71
S90-15	615	695	770	825	890	935	980	1,015	1,050	1,090	1,130	1,165	1,200	4	31.77	5.91
S40-15	660	745	825	890	1,010	1,055	1,100	1,150	1,190	1,230	1,260	1,300	1,335	4½	33.20	6.42

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-C—Continued  
TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
"Low Section" Sizes																	
5.00-12	370	420	465	505	540	565	580	605	625	650	670	695	715	3½	25.62	5.04	
5.50-12	415	470	520	560	605	635	665	695	720	745	770	800	820	4	26.93	5.59	
6.00-12	485	545	605	655	705	735	785	815	845	875	905	935	965	4½	28.33	6.14	
5.00-13	410	460	510	545	585	610	635	660	685	710	735	755	780	3½	26.64	5.04	
5.50-13	445	495	550	595	640	670	710	740	765	795	820	850	875	4	27.95	5.59	
7.25-13	730	825	915	990	1,070	1,110	1,160	1,200	1,245	1,290	1,335	1,380	1,420	5	32.51	7.24	
7.50-13	775	875	970	1,040	1,120	1,180	1,225	1,270	1,315	1,365	1,410	1,460	1,500	5½	33.22	7.48	
5.50-15L	505	570	630	675	725	760	800	840	870	900	935	965	995	4	29.97	5.59	
6.00-15L	595	665	740	800	860	890	930	970	1,005	1,040	1,080	1,115	1,145	4½	31.29	6.14	
6.50-15L	675	755	840	900	970	1,010	1,060	1,105	1,145	1,185	1,230	1,270	1,305	4½	32.68	6.54	
7.00-15L	760	855	950	1,025	1,100	1,145	1,190	1,235	1,280	1,325	1,375	1,420	1,460	5	33.85	7.01	
"Super Low Section" Sizes																	
145-10.5-95-10	380	430	475	515	550	580	605	630	650	675	700	725	745	4	24.76	5.79	
125-12.5-35-12	335	380	420	450	485	510	535	550	570	590	610	630	650	3½	24.68	5.00	
135-12.5-65-12	370	420	465	505	540	570	590	620	640	665	690	710	730	4	25.53	5.39	
145-12.5-95-12	440	495	550	595	640	665	700	730	755	785	810	840	865	4	26.69	5.79	
155-12.6-15-12	485	545	605	655	705	735	775	805	835	865	895	925	950	4½	27.36	6.18	
135-13.5-65-13	415	470	520	555	595	625	655	685	710	735	760	785	810	4	26.53	5.39	
145-13.5-95-13	470	525	585	620	670	705	745	770	800	825	855	885	910	4	27.61	5.79	
155-13.6-15-13	515	575	640	700	750	780	820	850	880	910	945	975	1,005	4½	28.44	6.18	
165-13.6-45-13	575	645	715	770	825	865	905	935	970	1,005	1,040	1,075	1,105	4½	29.52	6.57	
175-13.6-95-13	635	715	795	845	915	955	1,005	1,045	1,085	1,120	1,160	1,200	1,235	5	30.34	7.01	
185-13.7-35-13	695	785	870	945	1,010	1,060	1,115	1,160	1,205	1,245	1,290	1,335	1,370	5½	31.41	7.40	
135-14.5-65-14	440	495	550	595	640	665	700	730	755	785	810	840	865	4	27.54	5.59	
145-14.5-95-14	495	560	620	665	715	750	785	815	845	875	905	935	965	4	28.54	5.79	
155-14.6-15-14	540	610	675	730	780	825	860	895	925	960	995	1,030	1,060	4½	29.45	6.18	
125-15.5-35-15	395	445	495	535	570	600	625	650	675	700	720	745	770	3½	27.69	5.00	
135-15.5-65-15	460	520	575	610	660	690	720	750	775	805	835	860	885	4	28.53	5.39	
145-15.5-95-15	520	585	650	710	760	790	830	860	890	925	955	985	1,015	4	29.54	5.79	
155-15.6-35-15	585	660	730	780	835	875	915	950	985	1,020	1,055	1,090	1,125	4½	30.45	6.18	
175-15.7-15-15	705	795	880	955	1,020	1,070	1,125	1,170	1,215	1,255	1,300	1,345	1,385	5	32.42	7.01	
165-14	650	715	770	815	880	925	970	1,000	1,035	1,080	1,115	1,145	1,170	4½	31.22	6.57	
175-14	715	780	850	915	980	1,025	1,070	1,115	1,160	1,200	1,235	1,270	1,310	5	32.13	7.01	
185-14	805	870	940	1,000	1,080	1,135	1,190	1,235	1,290	1,325	1,370	1,400	1,435	5½	33.15	7.40	
195-14	860	950	1,025	1,105	1,180	1,235	1,290	1,345	1,400	1,445	1,490	1,535	1,580	5½	34.18	7.80	
205-14	940	1,025	1,115	1,190	1,270	1,335	1,400	1,455	1,510	1,565	1,610	1,655	1,700	6	34.84	8.19	
215-14	1,015	1,115	1,200	1,290	1,380	1,445	1,520	1,590	1,640	1,700	1,740	1,785	1,830	6	35.75	8.58	
225-14	1,080	1,180	1,280	1,380	1,465	1,540	1,620	1,700	1,750	1,810	1,850	1,915	1,970	6½	36.69	8.98	
165-15	685	750	805	860	915	970	1,015	1,060	1,105	1,135	1,180	1,200	1,235	4½	31.73	6.57	
185-15	815	905	970	1,050	1,115	1,180	1,235	1,280	1,325	1,370	1,410	1,445	1,490	5½	33.59	7.40	
195-15	880	970	1,060	1,135	1,215	1,280	1,335	1,390	1,445	1,490	1,535	1,580	1,620	5½	34.61	7.80	
205-15	970	1,060	1,145	1,225	1,300	1,370	1,445	1,500	1,565	1,610	1,665	1,720	1,765	6	35.79	8.19	
215-15	1,050	1,145	1,235	1,335	1,435	1,500	1,590	1,640	1,700	1,740	1,800	1,850	1,910	6	37.24	8.58	
235-15	1,150	1,295	1,435	1,545	1,660	1,735	1,825	1,895	1,965	2,035	2,110	2,180	2,245	6½	38.26	9.37	
5.0-15	460	520	575	610	660	690	720	750	775	805	835	860	885	4	25.53	5.39	
5.5-15	520	585	650	710	760	790	830	860	890	925	955	985	1,015	4	29.54	5.79	

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-D

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR DASH (-) RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (inches)	Minimum section size factor width <sup>2</sup> (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
145-10	495	525	545	565	585	605	625	640	655	670	685	700	710	4	24.76	5.79	
125-12	405	430	445	465	480	495	505	525	535	550	560	575	580	3½	24.68	5.00	
135-12	480	510	530	550	565	585	600	620	635	650	665	675	685	4	25.53	5.39	
145-12	570	605	625	650	675	695	715	740	760	775	790	805	815	4	26.09	5.79	
155-12	630	670	695	720	745	770	795	820	840	860	875	890	905	4½	27.36	6.18	
135-13	545	545	565	590	610	630	650	670	690	705	715	730	740	4	26.23	5.39	
145-13	605	640	665	695	720	740	765	790	815	830	845	855	870	4	27.61	5.79	
155-13	670	710	735	765	790	815	840	870	895	910	925	940	955	4½	28.44	6.18	
165-13	700	750	800	850	900	950	970	1010	1050	1090	1130	1170	1200	4½	29.52	6.57	
175-13			810	860	920	980	1040	1100	1150	1200	1240	1300	1350	4½	30.39	6.75	
185-13			870	940	1010	1080	1140	1210	1270	1330	1390	1450	1510	5	31.42	7.25	
195-13			970	1040	1110	1180	1250	1320	1390	1450	1520	1580	1640	5½	32.38	7.70	
135-14	555	585	610	635	655	675	695	720	740	750	765	780	790	4	27.54	5.39	
145-14	645	680	710	735	760	785	810	840	865	885	905	920	935	4	28.54	5.79	
155-14	630	680	720	760	800	840	880	920	950	980	1010	1040	1070	4½	29.45	6.18	
165-14	740	790	840	890	940	980	1020	1060	1100	1140	1180	1220	1250	4½	30.53	6.57	
175-14			830	900	960	1030	1100	1160	1230	1290	1350	1400	1470	5	31.63	7.00	
185-14			920	1000	1070	1140	1220	1290	1360	1420	1500	1560	1640	5	32.59	7.30	
195-14			1020	1100	1180	1270	1340	1420	1500	1570	1650	1720	1800	5½	33.69	7.80	
205-14			1100	1180	1270	1380	1450	1540	1620	1700	1770	1860	1940	6	34.82	8.80	
215-14			1200	1300	1390	1510	1580	1670	1770	1850	1920	2010	2100	6	35.79	8.60	
225-14			1320	1420	1510	1610	1710	1800	1900	1970	2050	2150	2230	6½	36.44	8.95	
125-15	495	525	545	565	585	605	625	640	655	670	685	700	710	3½	27.69	5.00	
135-15	585	620	645	670	695	715	735	755	775	795	810	825	840	4	28.53	5.39	
145-15	680	720	750	780	805	830	855	875	895	920	940	960	975	4	29.64	5.79	
155-15	740	785	815	850	880	905	930	955	980	1005	1025	1045	1060	4½	30.45	6.18	
165-15	770	820	870	920	970	1020	1070	1110	1150	1190	1230	1270	1310	4½	31.45	6.57	
175-15			990	1050	1100	1150	1200	1250	1300	1350	1400	1440	1480	5	32.41	7.00	
185-15		925	980	1020	1060	1095	1130	1170	1210	1250	1290	1330	1375	4½	32.04	6.62	
195-15			1000	1070	1140	1210	1280	1350	1420	1490	1560	1630	1690	5½	33.58	7.45	
205-15			1080	1160	1240	1320	1400	1470	1550	1620	1690	1760	1820	5½	34.22	7.65	
215-15			1190	1280	1370	1450	1530	1620	1700	1780	1860	1940	2020	6	35.20	8.10	
225-15			1280	1380	1480	1570	1660	1760	1860	1940	2020	2100	2200	6	36.00	8.35	
235-15			1320	1420	1520	1610	1695	1785	1875	1960	2050	2135	2225	6	36.49	8.35	
245-15			1370	1470	1580	1670	1760	1850	1940	2030	2120	2210	2300	6½	36.94	8.60	
255-15			1405	1515	1625	1725	1825	1925	2020	2110	2190	2280	2360	6½	37.30	8.80	
265-15			1430	1540	1640	1750	1850	1960	2060	2160	2250	2350	2450	6½	37.75	9.05	
275-15			1455	1570	1680	1790	1890	1990	2090	2190	2280	2380	2480	6½	38.28	9.05	
185-16			1140	1210	1270	1330	1390	1450	1500	1550	1600	1650	1700	5½	34.14	7.40	
165-100	800	800	920	980	1030	1080	1130	1180	1220	1260	1300	1340	1380	4	32.04	6.62	

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash"<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent

TABLE I-E

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "77 SERIES" BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (inches)	Minimum Section size factor width <sup>2</sup> (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
G77-14			1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6	35.04	8.4	
5.9-10	385	430	475	515	550	580	605	630	660	675	700			4	24.00	5.8	
5.9-12	460	505	550	595	640	665	700	730	755	785	810			4	26.00	5.9	
6.2-12	485	545	605	655	705	735	775	805	835	865	895	925	950	4	27.21	6.06	
6.2-13	515	575	640	700	750	780	820	850	880	910	945	975	1,005	4	28.19	6.06	
6.5-13	575	645	715	770	825	865	905	935	970	1,005	1,040	1,075	1,105	4½	29.18	6.54	
6.9-13	635	715	795	845	915	955	1,005	1,045	1,085	1,120	1,160			4½	29.92	6.77	
6.2-15	585	660	730	780	835	875	915	950	985	1,020	1,055	1,090	1,125	4	30.17	6.06	
6.9-15	705	795	880	955	1,020	1,070	1,125	1,170	1,215	1,255	1,300	1,345	1,385	4½	31.93	6.77	

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash"<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent

TABLE I-F

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR TYPE "R" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
5.20R10	435	460	485	510	535	560	585	615	635	660	685	710	735	3½	24.84	5.20	
5.00R12	480	495	515	535	555	575	595	615	635	650	670	690	710	3½	25.62	5.04	
5.20R12	515	540	565	590	615	640	665	695	715	740	765	790	815	3½	26.70	5.20	
5.50R12	520	545	570	595	620	650	670	705	725	750	775	800	825	4	29.93	5.50	
5.60R12	600	630	655	685	715	740	770	800	825	850	875	905	930	4	27.85	5.71	
5.00R13	525	555	575	590	615	630	650	670	690	705	725	745	765	3½	26.64	5.04	
5.20R13	570	595	620	645	670	695	720	750	770	795	820	845	870	3½	27.72	5.20	
5.50R13	575	600	625	650	675	695	725	750	775	795	825	850	875	4	27.95	5.59	
5.60R13	655	685	710	740	765	795	825	855	880	905	935	960	990	4	28.92	5.71	
6.00R13	675	705	735	760	790	815	845	875	900	925	950	975	1,005	4	29.37	6.00	
5.90R13	705	740	805	830	860	885	915	940	965	990	1,015	1,045	1,070	4	29.74	5.91	
6.40R13	810	840	870	905	940	970	1,005	1,040	1,070	1,100	1,135	1,165	1,200	4½	31.26	6.42	
6.50R13	800	830	860	890	925	960	995	1,030	1,060	1,090	1,120	1,150	1,180	4½	30.75	6.60	
6.70R13	690	775	860	935	1,000	1,045	1,090	1,135	1,175	1,220	1,260	1,305	1,340	4½	32.14	6.69	
7.00R13	870	910	950	985	1,025	1,060	1,100	1,145	1,175	1,215	1,255	1,295	1,335	5	31.88	7.00	
7.25R13	940	980	1,020	1,060	1,100	1,135	1,175	1,215	1,255	1,290	1,330	1,370	1,410	5	32.51	7.24	
5.20R14	605	640	670	700	730	760	795	830	855	885	915	950	980	3½	28.89	5.20	
5.90R14	750	785	815	845	875	905	935	970	995	1,025	1,055	1,085	1,115	4	30.76	5.91	
7.00R14	925	960	1,000	1,040	1,075	1,115	1,155	1,195	1,235	1,270	1,320	1,350	1,380	5	32.88	7.00	
7.50R14	1,065	1,100	1,140	1,180	1,220	1,260	1,300	1,340	1,380	1,415	1,460	1,500	1,540	5½	34.19	7.65	
5.60R15	705	740	805	830	860	885	915	940	965	990	1,015	1,045	1,070	4	29.87	5.71	
6.40R15	885	925	965	1,005	1,040	1,080	1,120	1,160	1,200	1,235	1,275	1,310	1,350	4½	33.26	6.42	
6.70R15	975	1,015	1,055	1,095	1,130	1,170	1,215	1,255	1,290	1,325	1,365	1,405	1,445	4½	33.93	7.00	
7.60R15	1,160	1,200	1,245	1,285	1,325	1,370	1,415	1,465	1,500	1,535	1,575	1,610	1,655	5½	36.00	7.90	

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-G

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "70 SERIES" TYPE "R" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
AR70-13	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	5	30.04	7.15	
BR70-13	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	5½	31.94	7.60	
CR70-13	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	5½	31.65	7.85	
DR70-13	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5½	32.29	8.05	
ER70-14	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	5½	32.23	7.65	
FR70-14	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5½	32.78	7.90	
GR70-14	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	5½	33.42	8.10	
HR70-14	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,660	1,700	6	34.34	8.55	
IR70-14	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6	35.12	8.85	
JR70-14	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	6½	36.31	9.40	
KR70-14	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	6½	36.86	9.55	
LR70-14	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	6½	37.79	9.80	
BR70-15	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	5	31.92	7.10	
DR70-15	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5½	33.04	7.75	
ER70-15	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	5½	33.91	7.95	
FR70-15	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,660	1,700	6	34.87	8.40	
GR70-15	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6	35.65	8.65	
HR70-15	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	6½	36.83	9.20	
IR70-15	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	6½	37.31	9.40	
KR70-15	1,320	1,380	1,460	1,540	1,620	1,690	1,770	1,830	1,900	1,970	2,030	2,090	2,150	6½	37.62	9.50	
LR70-15	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	6½	38.06	9.65	
MR70-15	1,420	1,520	1,610	1,700	1,780	1,860	1,940	2,020	2,090	2,160	2,230	2,300	2,370	7	38.93	10.15	

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

PART 571; S 109A-5

TABLE 1-H

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR TYPE "R" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
145R10	465	495	525	550	580	605	630	655	680	700	725	750	770	4	24.76	5.79
125R12	370	400	430	450	475	495	515	535	555	575	595	610	630	3½	24.68	5.00
135R12	440	475	505	535	560	585	610	635	655	680	700	725	745	4	25.53	5.39
145R12	530	565	600	635	665	695	725	755	780	810	835	860	885	4	26.69	5.79
155R12	590	630	665	700	735	770	800	835	865	895	925	950	980	4½	27.36	6.18
135R13	480	515	545	575	600	630	655	680	705	730	755	780	800	4	26.53	5.39
145R13	590	630	665	700	735	770	800	835	860	890	920	950	980	4	27.59	5.79
155R13	645	690	730	770	810	845	885	915	950	985	1,015	1,045	1,075	4½	28.44	6.18
165R13	680	730	770	820	860	900	930	970	1,010	1,040	1,080	1,110	1,140	4½	29.18	6.40
175R13	790	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	4½	30.30	6.75
185R13	870	930	980	1,030	1,080	1,130	1,180	1,230	1,270	1,310	1,360	1,400	1,440	5	31.42	7.25
195R13	955	1,010	1,060	1,110	1,170	1,220	1,280	1,320	1,370	1,420	1,470	1,510	1,550	5½	32.38	7.70
135R14	515	550	585	615	645	675	705	730	760	785	810	835	860	4	27.54	5.39
145R14	595	635	675	715	750	785	815	850	880	910	940	965	995	4	28.54	5.79
155R14	690	740	780	820	860	900	940	970	1,010	1,040	1,080	1,110	1,140	4	29.51	6.05
165R14	760	810	860	910	960	1,000	1,040	1,080	1,120	1,170	1,200	1,240	1,280	4½	30.65	6.55
175R14	840	900	950	1,000	1,050	1,100	1,140	1,190	1,230	1,280	1,320	1,360	1,400	5	31.63	7.00
185R14	920	980	1,040	1,100	1,160	1,210	1,260	1,310	1,360	1,410	1,450	1,500	1,540	5	32.59	7.30
195R14	1,020	1,090	1,150	1,210	1,270	1,330	1,390	1,440	1,500	1,540	1,590	1,640	1,690	5½	33.69	7.80
205R14	1,110	1,190	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6	34.82	8.30
215R14	1,210	1,290	1,360	1,430	1,510	1,580	1,640	1,710	1,770	1,830	1,890	1,950	2,010	6	35.79	8.60
225R14	1,270	1,350	1,430	1,510	1,580	1,660	1,730	1,790	1,860	1,920	1,980	2,040	2,100	6½	36.44	8.95
125R15	460	490	520	550	575	605	630	655	680	705	725	745	770	3½	27.69	5.00
135R15	545	580	615	650	680	715	745	775	800	830	855	880	910	4	28.53	5.39
145R15	640	680	720	760	795	830	865	900	935	965	996	1,025	1,055	4	29.54	5.79
155R15	690	735	780	825	865	905	940	980	1,015	1,050	1,085	1,115	1,150	4½	30.45	6.18
165R15	770	820	870	910	960	1,000	1,050	1,090	1,130	1,170	1,200	1,240	1,280	4½	31.18	6.40
175R15	840	900	950	1,000	1,050	1,100	1,140	1,180	1,230	1,280	1,320	1,360	1,400	5	32.30	6.90
185R15	950	1,010	1,070	1,130	1,180	1,240	1,290	1,340	1,390	1,430	1,480	1,530	1,570	5½	33.58	7.45
195R15	1,020	1,090	1,150	1,210	1,270	1,330	1,380	1,440	1,490	1,540	1,590	1,640	1,690	5½	34.22	7.65
205R15	1,100	1,170	1,240	1,300	1,370	1,430	1,490	1,550	1,610	1,660	1,720	1,770	1,820	6	35.20	8.10
215R15	1,190	1,270	1,340	1,410	1,480	1,550	1,620	1,680	1,740	1,800	1,860	1,910	1,970	6	36.00	8.35
225R15	1,270	1,350	1,430	1,510	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	6½	36.94	8.80
235R15	1,340	1,430	1,510	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	6½	37.75	9.05
205R16	1,100	1,170	1,240	1,300	1,370	1,430	1,490	1,550	1,610	1,660	1,720	1,770	1,820	6	36.52	8.19

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R"<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent

TABLE I-J

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "78 SERIES" BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test run width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
A78-13	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	4½	29.74	6.60
B78-13	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	5	30.72	7.05
C78-13	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	5½	31.56	7.45
D78-13	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5½	32.18	7.70
A78-14	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	4½	30.31	6.45
B78-14	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	4½	31.04	6.65
C78-14	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	5	31.95	7.05
D78-14	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5	32.52	7.35
E78-14	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	5½	33.29	7.65
F78-14	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	5½	34.04	7.90
G78-14	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6	35.02	8.35
H78-14	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	6	36.06	8.70
J78-14	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	6	36.58	8.80
A78-15	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	4½	30.85	6.35
C78-15	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	5	32.45	6.95
D78-15	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5	33.05	7.15
E78-15	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	5	33.65	7.35
F78-15	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	5½	34.56	7.70
G78-15	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	5½	35.36	8.05
H78-15	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	6	36.50	8.55
J78-15	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	6	37.02	8.70
L78-15	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	6	37.73	8.85
N78-15	1,500	1,600	1,700	1,790	1,880	1,970	2,050	2,130	2,210	2,280	2,360	2,430	2,500	7	39.50	9.80

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-K

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "60 SERIES" BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test run width (inches)	Minimum size factor	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
A60-13	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	5½	30.00	7.85
B60-13	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	6	30.95	8.35
C60-13	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6	31.58	8.60
D60-13	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	6	32.20	8.85
B60-14	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	5½	31.26	8.00
C60-14	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6	32.09	8.45
D60-14	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	6	32.72	8.65
E60-14	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	7	33.69	9.30
F60-14	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	7	34.44	9.55
G60-14	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	7	35.23	9.85
H60-14	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	7	36.20	10.25
J60-14	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	7	36.70	10.40
L60-14	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	8	37.83	11.10
B60-15	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	5½	31.85	7.80
C60-15	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6	32.66	8.25
E60-15	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	6	33.83	8.70
F60-15	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	6½	34.75	9.20
G60-15	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	7	35.73	9.70
H60-15	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	7	36.70	10.05
J60-15	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	7	37.20	10.25
L60-15	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	7	37.91	10.50
N60-14	1,500	1,600	1,700	1,790	1,880	1,970	2,050	2,130	2,210	2,280	2,360	2,430	2,500	8	39.17	11.65

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-L

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR SERIES 50 CANTILEVERED SIDEWALL TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
E50C-16 .....			1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	3½	33.31	7.95
F50C-16 .....			1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	3½	34.04	8.20
G50C-17 .....			1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	3½	35.34	8.45
H50C-17 .....			1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	3½	36.30	8.80
L50C-18 .....			1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	3½	38.00	9.10

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-M

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "78 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
AT78-13 .....	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	4½	29.55	6.50
BT78-13 .....	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	4½	30.81	6.75
CT78-13 .....	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	5	31.13	7.15
AT78-14 .....	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	4½	30.08	6.40
BT78-14 .....	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	4½	30.84	6.60
CT78-14 .....	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	5	31.67	7.00
DT78-14 .....	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5	32.26	7.20
ET78-14 .....	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	5	32.86	7.40
FT78-14 .....	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	5½	33.78	7.85
GT78-14 .....	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6	34.78	8.30
HT78-14 .....	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	6	35.77	8.60
JT78-14 .....	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	6½	36.47	8.95
AT78-15 .....	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	4½	30.66	6.25
BT78-15 .....	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	4½	31.38	6.45
CT78-15 .....	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	5	32.24	6.85
ET78-15 .....	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	5½	33.58	7.45
FT78-15 .....	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	5½	34.28	7.70
GT78-15 .....	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6	35.30	8.15
HT78-15 .....	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	6	36.23	8.45
JT78-15 .....	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	6½	36.98	8.80
KR-78-15 .....	1,290	1,380	1,460	1,540	1,620	1,690	1,770	1,830	1,900	1,970	2,030	2,090	2,150	6	37.03	8.70
LR78-15 .....	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	6½	37.66	9.00
MR78-15 .....	1,420	1,520	1,610	1,700	1,780	1,860	1,940	2,020	2,090	2,160	2,230	2,300	2,370	6½	38.35	9.20
NR78-15 .....	1,500	1,600	1,700	1,790	1,880	1,970	2,050	2,130	2,210	2,280	2,360	2,430	2,500	7	39.17	9.70

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.



TABLE I-N

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "70 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
165/70 R 10	585	600	615	630	650	665	680	700	715	730	745	760	780	4 1/2	25.50	6.50
145/70 R 12	500	515	535	550	570	590	605	620	640	660	675	695	710	4	25.50	5.67
155/70 R 12	580	595	615	630	650	665	685	700	720	735	750	765	780	4	26.13	5.93
165/70 R 12	665	680	700	720	740	760	780	795	815	835	850	870	890	4 1/2	27.43	6.50
175/70 R 12			780	805	830	855	880	900	925	950	970	995	1,020	5	28.21	6.92
145/70 R 13	545	560	580	600	615	630	650	665	685	700	720	735	750	4	26.44	5.67
155/70 R 13	630	650	665	685	705	725	740	760	780	800	820	835	855	4	27.17	5.93
165/70 R 13			750	770	795	815	835	860	880	900	920	940	960	4 1/2	28.45	6.50
175/70 R 13			845	865	890	910	935	955	980	1,000	1,025	1,045	1,070	5	29.31	6.92
185/70 R 13			940	965	990	1,015	1,040	1,065	1,090	1,115	1,140	1,165	1,190	5	30.39	7.31
195/70 R 13			1,045	1,070	1,100	1,125	1,155	1,180	1,210	1,240	1,265	1,290	1,320	5 1/2	31.20	7.74
205/70 R 13	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5 1/2	32.29	8.05
155/70 R 14			700	720	740	760	780	795	815	835	850	870	890	4	28.15	5.93
165/70 R 14	640	680	725	765	800	835	875	905	940	970	1,005	1,035	1,065	4 1/2	29.31	6.50
175/70 R 14			880	905	925	950	975	1,000	1,025	1,050	1,075	1,100	1,125	5	30.33	6.92
185/70 R 14			990	1,015	1,045	1,070	1,100	1,130	1,155	1,180	1,210	1,235	1,265	5	31.39	7.31
195/70 R 14			1,090	1,120	1,155	1,185	1,220	1,250	1,280	1,310	1,340	1,375	1,405	5 1/2	32.30	7.74
155/70 R 15	690	710	730	750	770	790	810	830	850	870	890	910	930	4	29.20	5.93
175/70 R 15			940	965	990	1,015	1,040	1,065	1,090	1,115	1,140	1,165	1,190	5	31.36	6.92
185/70 R 15	890	915	1,040	1,070	1,100	1,130	1,155	1,180	1,210	1,235	1,265	1,290	1,320	5	32.34	7.31
225/70 R 15	1,000	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6	35.65	8.65

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-O

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "LOW SECTION" TYPE "R" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)											Test rim width (inches)	Minimum size factor (inches)	Section width (inches)
	20	22	24	26	28	30	32	34	36	38	40			
140 R 12.....	490	520	550	580	610	640	660	690	710	740	770	4	26.20	5.40
150 R 12.....	570	610	640	670	700	730	760	790	820	850	880	4	27.19	5.75
150 R 13.....	600	640	680	720	750	780	810	840	870	900	940	4	28.17	5.75
160 R 13.....	670	700	740	780	820	860	900	940	980	1,010	1,040	4½	29.23	6.25
170 R 13.....	720	760	800	840	880	920	960	1,000	1,040	1,080	1,110	5	30.08	6.60
150 R 14.....	640	670	710	750	780	820	860	900	940	970	1,000	4	29.16	5.75
180 R 15.....	920	970	1,020	1,070	1,120	1,170	1,230	1,280	1,330	1,380	1,430	5	32.97	6.85

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-P

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR SERIES 45 CANTILEVERED SIDEWALL TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)											Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	20	22	24	26	28	30	32	34	36	38	40			
G45C-16	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	5	35.53	9.70

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-R

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "60 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
AR60-13	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	5½	30.60	7.85
BR60-13	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	6	30.95	8.35
CR60-13	840	890	950	1,000	1,050	1,110	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6	31.58	8.60
CR60-14	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6	32.10	8.45
DR60-13	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	6½	32.20	9.05
ER60-13	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	6½	33.01	9.25
AR60-14	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	5½	30.54	7.70
DR60-14	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	6	32.72	8.65
ER60-14	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	6½	33.50	9.10
FR60-14	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	6½	34.25	9.35
GR60-14	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	7	35.24	9.85
HR60-14	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	7	36.20	10.25
LR60-14	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	8	37.84	11.10
ER60-15	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	6	33.84	8.70
FR60-15	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	6½	34.75	9.20
GR60-15	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	6½	35.52	9.50
HR60-15	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	7	36.70	10.05
JR60-15	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	7	37.20	10.25
LR60-15	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	7	37.91	10.50

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-S

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "60 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
185/60R13			780	815	845	880	915	945	980	1,010	1,045	1,075	1,110	5	28.61	7.28
205/60R13	735	785	835	880	925	965	1,005	1,045	1,085	1,120	1,160	1,195	1,230	6	30.41	8.19
215/60R13	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6	31.58	8.60
225/60R13	870	930	985	1,040	1,090	1,140	1,190	1,235	1,280	1,325	1,365	1,410	1,450	6½	32.02	8.98
235/60R13	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	6	32.81	9.05
185/60R14	715	760	810	850	895	935	975	1,015	1,050	1,085	1,120	1,155	1,190	5½	29.30	7.45
195/60R14	770	825	875	920	965	1,010	1,055	1,095	1,135	1,175	1,210	1,250	1,285	6	30.50	7.80
205/60R14	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	6	31.62	8.19
225/60R14	925	985	1,045	1,105	1,160	1,210	1,260	1,310	1,360	1,405	1,450	1,495	1,540	6½	33.02	8.98
245/60R14	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	6½	34.25	9.35
265/60R14	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	7	36.20	10.25
195/60R15	795	850	900	950	995	1,040	1,085	1,130	1,170	1,210	1,250	1,290	1,325	6	31.54	7.80
205/60R15	870	930	985	1,040	1,090	1,140	1,190	1,235	1,280	1,325	1,365	1,410	1,450	6	32.45	8.19
215/60R15	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	6	33.25	8.50
235/60R15	1,035	1,105	1,175	1,235	1,300	1,360	1,415	1,470	1,525	1,575	1,630	1,680	1,725	7	34.93	9.45
255/60R15	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	7	36.70	10.05

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-T

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "70 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
265/70R13	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5½	32.29	8.05
265/70R14	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	5½	33.42	8.10
215/70R14	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	6	34.34	8.55
225/70R14	1,190	1,180	1,250	1,310	1,370	1,430	1,490	1,550	1,610	1,670	1,730	1,780	1,830	6	35.12	8.85
195/70R15	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	5½	33.34	7.75
205/70R15	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	5½	33.91	7.95
215/70R15	1,020	1,090	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	6	34.87	8.40
225/70R15	1,190	1,180	1,250	1,310	1,370	1,430	1,490	1,550	1,610	1,670	1,730	1,780	1,830	6	35.65	8.65
235/70R15	1,290	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	6½	36.50	9.21

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-U

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "60 SERIES" CANTILEVERED TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
B60C-13.....	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	4½	30.41	7.65
C60C-15.....	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	4	31.92	7.35

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to or in place of the "dash".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-V

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR SERIES "50 SERIES" BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
B50-13.....	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	6½	30.84	9.15
C50-13.....	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6½	31.48	9.40
D50-13.....	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	6½	32.29	9.85
F50-14.....	1,020	1,080	1,160	1,220	1,280	1,340	1,400	1,450	1,500	1,550	1,610	1,650	1,700	7	34.10	10.20
G50-14.....	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	8	35.29	10.95
H50-14.....	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	8	36.24	11.35
M50-14.....	1,420	1,520	1,610	1,700	1,780	1,860	1,940	2,020	2,090	2,160	2,230	2,300	2,370	9	38.51	12.55
N50-14.....	1,500	1,600	1,700	1,790	1,880	1,970	2,050	2,130	2,210	2,280	2,360	2,430	2,500	9	39.17	12.85
F50-15.....	950	1,010	1,070	1,130	1,190	1,240	1,300	1,350	1,400	1,440	1,490	1,540	1,580	6½	33.74	9.50
G50-15.....	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	7	35.38	10.25
H50-15.....	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	8	36.76	11.15
L50-15.....	1,340	1,430	1,520	1,600	1,680	1,750	1,830	1,900	1,970	2,040	2,100	2,170	2,230	8	37.94	11.65
N50-15.....	1,500	1,600	1,700	1,790	1,880	1,970	2,050	2,130	2,210	2,280	2,360	2,430	2,500	9	39.65	12.65

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-W

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "50 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
BR50-13.....	780	840	890	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	6½	30.84	9.15
CR50-13.....	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6½	31.48	9.40
GR50-14.....	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	8	35.29	10.95
JR50-14.....	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	8	36.74	11.60
GR50-15.....	1,100	1,180	1,250	1,310	1,380	1,440	1,500	1,560	1,620	1,680	1,730	1,780	1,830	7	35.38	10.35
HR50-15.....	1,200	1,290	1,360	1,440	1,510	1,580	1,650	1,710	1,770	1,830	1,890	1,950	2,010	8	36.76	11.15
JR50-15.....	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,780	1,860	1,920	1,980	2,040	2,100	8	37.24	11.35
LR50-15.....	1,340	1,430	1,520	1,600	1,680	1,750	1,820	1,900	1,970	2,040	2,100	2,170	2,230	8	37.94	11.65

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-X

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR MILLIMETRIC "50 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
175/50 R 15.....	500	535	565	595	625	655	680	710	735	760	785	810	835	6½	26.67	7.13
195/50 R 15.....	650	690	730	770	810	850	890	920	955	990	1,020	1,050	1,080	6	30.16	7.91
205/50 R 15.....	720	770	810	860	900	940	980	1,020	1,060	1,100	1,130	1,160	1,200	6	30.82	8.19
225/50 R 15.....	840	890	950	1,000	1,050	1,100	1,140	1,190	1,230	1,270	1,320	1,360	1,400	6½	32.37	8.98
245/50 R 15.....	1,260	1,350	1,430	1,500	1,580	1,650	1,720	1,790	1,860	1,920	1,980	2,040	2,100	8	36.84	11.26
225/50 R 16.....	880	940	1,000	1,060	1,110	1,160	1,210	1,255	1,300	1,345	1,390	1,435	1,475	6½	33.74	8.98
265/50 R 16.....	1,160	1,235	1,310	1,385	1,450	1,520	1,580	1,645	1,705	1,765	1,820	1,875	1,930	8	36.55	10.71

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-Y

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR ALL MILLIMETRIC "65" SERIES RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (mm)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
195/65 R 350	815	860	905	950	990	1,030	1,070	1,115	1,155	1,195	1,235	1,275	1,315	105	36.70	7.48
195/65 R 375	865	905	945	980	1,035	1,080	1,125	1,170	1,210	1,250	1,290	1,330	1,370	105	31.68	7.48
205/65 R 375	920	970	1,020	1,070	1,120	1,170	1,220	1,265	1,310	1,355	1,400	1,445	1,490	105	32.65	7.76

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-AA

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P/80 SERIES" ISO TYPE TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
P155/80 R 13 <sup>3</sup>	660	705	740	760	795	825	860	880	905	935	960	980	1,005	4 1/2	28.46	6.18

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.<sup>3</sup> The letter "D" for diagonal and "B" for belted may be used in place of the "R".

TABLE I-BB

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "40 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
205/40 R 13	460	490	520	545	575	600	625	650	675	695	720	740	765	7	27.13	8.11
285/40 R 15	890	950	1,010	1,070	1,120	1,170	1,220	1,270	1,320	1,360	1,410	1,450	1,490	9 1/2	34.59	11.22

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-CC

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "35 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
345/35 R 15	960	1,030	1,090	1,150	1,210	1,270	1,320	1,370	1,420	1,470	1,520	1,560	1,610	11 1/2	37.42	11.22

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-DD

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "55 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
225/55 R 13	830	880	940	980	1,030	1,080	1,120	1,160	1,200	1,240	1,280	1,320	1,350	6	30.98	8.78
205/55 R 14	720	770	810	860	900	940	980	1,020	1,060	1,090	1,130	1,160	1,200	6	30.59	8.19
225/55 R 14	845	905	960	1,015	1,070	1,120	1,170	1,220	1,265	1,310	1,355	1,400	1,440	6 1/2	32.19	8.98
235/55 R 15	970	1,035	1,100	1,160	1,215	1,270	1,325	1,375	1,430	1,475	1,525	1,570	1,615	7	34.02	9.43
205/55 R 16	780	840	880	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	6	32.57	8.19

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE 1-EE

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "70 SERIES" BIAS PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
235 45 R15 .....	780	840	880	930	980	1,030	1,070	1,110	1,150	1,190	1,230	1,270	1,300	8	32.11	9.29

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE 1-FF

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P/70" SERIES ISO TYPE TIRES, STANDARD LOAD

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
P205 70 R 13 <sup>3</sup> .....	870	925	980	1,025	1,070	1,115	1,155	1,200	1,235	1,280	1,310	1,345	1,390	5½	31.73	7.99

<sup>1</sup> The letter "H", "S", or "V" may be included in any specified tire size designation adjacent to the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than 7 percent.<sup>3</sup> The letter "D" for diagonal and "R" for bias-belted may be used in place of the "R".

TABLE 1-GG

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P/80" ISO TYPE TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)								Test rim width (inches)	Minimum size factor (mm)	Section width <sup>2</sup> (mm)
	120	140	160	180	200	220	240	260			
P155/80 R12 .....	280	315	340	360	380	395	415	430	445	4½	157
P155/80 R13 .....	310	335	355	380	400	420	435	455	470	4½	157
P165/80 R13 .....	345	370	395	420	445	465	485	505	525	4½	165
P175/80 R13 .....	380	410	440	465	490	515	535	560	580	5	177
P185/80 R13 .....	415	450	480	510	540	565	590	615	640	5	184
P165/80 R14 .....	360	390	420	445	470	490	510	535	555	4½	165
P175/80 R14 .....	400	430	460	490	515	540	565	590	610	5	177
P185/80 R14 .....	440	475	515	540	565	595	620	645	670	5	184
P195/80 R14 .....	480	520	550	580	620	650	680	710	735	5½	196
P215/80 R14 .....	570	615	655	685	725	770	805	835	870	6	216
P155/80 R15 .....	345	370	395	420	445	465	485	505	525	4½	157
P165/80 R15 .....	380	410	440	465	490	515	540	560	580	4½	165
P185/80 R15 .....	465	505	540	570	600	630	660	690	720	5½	184

<sup>1</sup> The letter "D" for diagonal and "R" for bias-belted may be used in place of the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

TABLE 1-HH

## TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P/75" ISO TYPE TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)								Test rim width (inches)	Minimum size factor (mm)	Section width <sup>2</sup> (mm)
	120	140	160	180	200	220	240	260			
P165/75 R13 .....	320	350	370	395	415	435	455	475	490	4½	165
P175/75 R13 .....	355	385	410	435	460	480	505	525	545	5	177
P185/75 R13 .....	390	420	450	480	505	530	555	575	595	5	184
P195/75 R13 .....	430	460	495	525	550	580	605	630	655	5½	196
P215/75 R13 .....	575	605	635	665	695	725	755	785	815	6	216
P165/75 R14 .....	410	445	475	505	530	560	585	605	630	5	184
P185/75 R14 .....	450	485	520	550	580	610	635	665	690	5½	196
P205/75 R14 .....	490	530	565	600	625	665	695	720	750	5½	203
P215/75 R14 .....	535	575	615	650	680	720	755	785	815	6	216
P225/75 R14 .....	575	620	665	705	745	780	815	850	880	6	223
P175/75 R15 .....	395	425	455	480	510	535	555	580	600	5	177
P185/75 R15 .....	470	510	545	580	610	640	670	695	720	5½	196
P205/75 R15 .....	515	555	595	630	665	695	725	755	785	5½	203
P215/75 R15 .....	555	600	645	685	720	755	790	820	850	6	216
P225/75 R15 .....	605	650	695	740	780	815	850	885	920	6	223
P235/75 R15 .....	650	700	750	795	840	880	920	955	990	6½	235

<sup>1</sup> The letter "D" for diagonal and "R" for bias-belted may be used in place of the "R".<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

TABLE I-JJ  
TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P/70" ISO TYPE TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)								Test rim width (inches)	Minimum size factor (mm)	Section width <sup>2</sup> (mm)
	120	140	160	180	200	220	240	260			
P175/70 R 13.....	335	360	385	405	430	450	470	490	510	5	740
P185/70 R 13.....	365	395	420	450	470	495	515	540	560	5	761
P195/70 R 13.....	400	430	460	490	515	540	565	590	610	5½	786
P205/70 R 13.....	435	470	505	535	560	590	615	640	665	5½	806
P205/70 R 14.....	460	495	530	560	590	620	650	675	700	5½	832
P215/70 R 14.....	500	535	575	610	640	675	705	730	760	6	858
P225/70 R 14.....	540	580	620	660	695	730	760	790	820	6	879
P235/70 R 14.....	580	625	670	710	750	785	820	855	885	6½	904
P245/70 R 14.....	625	675	720	765	805	845	880	920	955	7	930
P255/70 R 15.....	565	610	650	690	725	760	795	830	860	6	904
P235/70 R 15.....	605	655	700	745	785	820	860	895	925	6½	929
P255/70 R 15.....	700	755	805	855	900	945	990	1,030	1,065	7	976

<sup>1</sup> The letter "D" for diagonal and "B" for bias-belted may be used in place of the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S 4.2.2.2

TABLE I-KK  
TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P/60" ISO TYPE TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)								Test rim width (inches)	Minimum size factor (mm)	Section width <sup>2</sup> (mm)
	120	140	160	180	200	220	240	260			
P195/60 R 13.....	345	375	400	425	445	470	490	510	530	5½	747
P205/60 R 13.....	375	405	435	460	485	510	535	555	575	5½	766
P215/60 R 13.....	410	440	470	500	530	555	580	600	625	6	790
P195/60 R 14.....	365	395	420	445	470	495	515	540	560	5	773
P215/60 R 14.....	430	465	495	530	555	585	610	635	660	6	816
P225/60 R 14.....	465	505	535	570	600	630	660	685	710	6	834
P235/60 R 14.....	500	540	580	615	645	680	710	740	765	6½	857
P245/60 R 14.....	540	580	620	660	695	730	760	795	825	7	882
P205/60 R 15.....	415	450	480	510	540	565	590	615	635	5½	817
P225/60 R 15.....	490	525	565	595	630	660	690	720	745	6	859
P235/60 R 15.....	525	565	605	645	680	710	745	775	800	6½	882
P245/60 R 15.....	565	610	650	690	730	765	795	830	860	7	907
P255/60 R 15.....	605	650	695	740	780	820	855	890	925	7	925
P265/60 R 15.....	645	695	745	790	835	875	915	950	985	7	943
P275/60 R 15.....	690	745	795	845	890	930	975	1,015	1,050	8	972

<sup>1</sup> The letter "D" for diagonal and "B" for bias-belted may be used in place of the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S 4.2.2.2

TABLE I-LL  
TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "T SERIES" 60 LB/IN <sup>2</sup> TIRES

Tire size designation <sup>1</sup>	Maximum tire load (pounds) at 60 p.s.i. cold inflation pressure	Test rim width (inches)	Minimum size factor (inches)	Section width <sup>2</sup> (inches)
T105/70 D 14.....	1,070	4	24.02	4.57
T105/70 D 15.....	1,135	4	25.00	4.57
T105/70 D 16.....	1,190	4	25.98	4.57
T115/70 D 14.....	1,235	4	24.84	4.84
T115/70 D 15.....	1,310	4	25.83	4.84
T115/70 D 16.....	1,380	4	26.81	4.84
T125/70 D 14.....	1,420	4	25.71	5.16
T125/70 D 15.....	1,500	4	26.69	5.16
T125/70 D 16.....	1,575	4	27.68	5.16
T125/80 D 16.....	1,609	4	28.62	5.16
T135/70 D 14.....	1,642	4	26.61	5.16
T135/70 D 15.....	1,610	4	26.54	5.43
T135/70 D 16.....	1,685	4	27.52	5.43
T135/80 D 16.....	1,775	4	28.50	5.43
T145/80 D 16.....	2,050	4	30.39	4.57
T155/80 D 16.....	2,335	4	32.48	5.98

<sup>1</sup> The letter "D" for diagonal and "B" for bias-belted may be used in place of the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S 4.2.2.2.

TABLE I-MM

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "65 SERIES" RADIAL PLY TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (mm)	Minimum size factor (mm)	Section width (mm)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
165-65 R13.....	580	620	660	695	730	760	795	825	855	885	915	940	970	4 1/2	27 1/2	6.50	
165-65 R14.....	620	660	700	740	775	810	845	880	910	940	970	1000	1030	4 1/2	28 1/2	6.50	
175-65 R14.....	685	740	785	830	870	910	945	985	1020	1055	1090	1125	1155	5	29 1/2	6.97	
185-65 R14.....	750	800	845	890	935	980	1020	1060	1100	1140	1175	1210	1245	5	30 1/2	7.24	
185-65 R15.....	795	850	900	950	995	1040	1085	1130	1170	1210	1250	1290	1325	5	31 1/2	7.24	
195-65 R15.....	870	930	985	1040	1090	1140	1190	1235	1280	1325	1365	1410	1450	5 1/2	32 1/2	7.72	

<sup>1</sup> The letter "H," "S," or "V" may be included in any specified tire size designation adjacent to the "R."

\* Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-NN

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTH FOR ALL MILLIMETRIC "60 SERIES" RADIAL PLY TIRES (TR OR JM RIM)

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)													Test rim width (mm)	Minimum size factor (mm)	Section width <sup>2</sup> (mm)
	16	18	20	22	24	26	28	30	32	34	36	38	40			
195-60 R 300 .....	840	900	950	1,000	1,050	1,100	1,150	1,190	1,240	1,280	1,320	1,360	1,400	150	811	200

<sup>1</sup> The letter "H," "S," or "V" may be included in any specified tire size designation adjacent to the "R."

\* Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-OO

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "65 SERIES" ALL MILLIMETRIC ON DL RIMS

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (inches)	Minimum size factor (inches)	Section width (inches)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
150-65 R320.....	415	445	480	510	545	575	605	640	670	700	730	765	800	95	655	149	
160-65 R345.....	495	530	570	610	645	685	725	760	795	835	875	910	950	110	704	162	
180-65 R345.....	665	655	700	745	795	840	885	935	980	1,025	1,070	1,120	1,165	110	744	177	

<sup>1</sup> The letter "H," "S," or "V" may be included in any specified tire size designation adjacent to the "R."

\* Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

TABLE I-PP

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR ALL MILLIMETRIC "65 SERIES" RADIAL PLY TIRES (TR OR JM RIM)

Tire size designation	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (mm)	Minimum size factor (mm)	Section width (mm)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
180-65 R-365.....	700	750	795	840	885	925	960	995	1,030	1,065	1,100	1,135	1,165	135	771	184	
180-65 R-390.....	725	775	820	865	905	945	985	1,025	1,065	1,100	1,135	1,170	1,205	135	796	184	
190-65 R-390.....	815	870	925	975	1,020	1,070	1,115	1,155	1,200	1,240	1,280	1,320	1,355	150	822	199	
240-65 R-390.....	1,210	1,295	1,375	1,450	1,520	1,590	1,655	1,720	1,785	1,845	1,905	1,965	2,020	180	957	245	

<sup>1</sup> The letter "H," "S," or "V" may be included in any specified tire size designation adjacent to the "R."

\* Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE I-QQ

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR ALL MILLIMETRIC "55 SERIES" RADIAL PLY TIRES

Tire size designation	Maximum tire loads (pounds) at various cold inflation pressures (p.s.i.)														Test rim width (mm)	Minimum size factor (mm)	Section width (mm)
	16	18	20	22	24	26	28	30	32	34	36	38	40				
220-55 R390.....	915	975	1,035	1,090	1,145	1,200	1,250	1,295	1,345	1,390	1,435	1,480	1,520	165	842	224	
240-55 R390.....	1,055	1,125	1,195	1,260	1,320	1,380	1,440	1,495	1,550	1,600	1,655	1,705	1,755	180	884	245	
240-55 R415.....	1,095	1,170	1,240	1,300	1,370	1,430	1,490	1,545	1,600	1,655	1,710	1,760	1,810	180	909	245	

<sup>1</sup> The letter "H," "S," or "V" may be included in any specified tire size designation adjacent to the "R."

\* Actual section width and overall width shall not exceed the specified section width by more than 7 percent.

TABLE 1-RR

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P-65" ISO TYPE TIRES FOR TR or JM MILLIMETRIC RIMS

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa) <sup>2</sup>								Test rim width (mm)	Minimum size factor (mm)	Section width <sup>3</sup> (mm)
	120	140	160	180	200	220	240	260			
P195/65 R 365 -----	400	430	460	490	515	540	565		135	800	194
P205/65 R 390 -----	455	490	525	560	590	615	645		150	850	208
P215/65 R 390 -----	495	535	570	605	635	670	700		150	870	215
P225/65 R 39 -----	535	575	615	655	690	720	755		165	894	228

<sup>1</sup> The designated cold inflation pressures may be increased to a maximum of 300 kPa to meet special vehicle performance requirements with no increase in load.

<sup>2</sup> The letter "D" for diagonal and "R" for bias belted may be used in place of the "R".

<sup>3</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

TABLE 1-SS

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P-50" SERIES ISO TYPE TIRES

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa)								Test rim width (inches)	Minimum size factor (mm)	Section width (mm)	
	120	140	160	180	200	220	240	260				
P215/50 R 13 -----	350	380	405	430	450	475	495	515	535	6	749	216
P235/50 R 13 -----	405	440	470	500	525	550	575	600	620	6 1/2	787	235
P245/50 R 14 -----	460	495	530	565	595	625	650	675	705	7	835	248
P265/50 R 14 -----	525	570	610	645	680	715	745	775	805	7	868	262
P265/50 R 15 -----	530	585	635	675	710	745	780	810	840	7	893	262
P275/50 R 15 -----	585	635	680	720	760	795	830	865	895	8	921	279
P285/50 R 15 -----	660	715	765	810	855	895	935	975	1,010	8	953	294

<sup>1</sup> The letter "D" for diagonal and "R" for bias belted may be used in place of the "R".

<sup>3</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

TABLE 1-TT

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P-65" SERIES ISO TYPE TIRES FOR DL MILLIMETRIC RIMS

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (psi) <sup>2</sup>								Test rim width (mm)	Minimum size factor (mm)	Section width <sup>3</sup> (mm)
	120	140	160	180	200	220	240	260			
P195/65 R 370 -----	405	435	465	495	520	545	570		135	805	194

<sup>1</sup> The designated cold inflation pressure may be increased to a maximum of 300 kPa to meet special vehicle performance requirements with no increase in load.

<sup>2</sup> The letter "D" for diagonal and "R" for bias belted may be used in place of the "R".

<sup>3</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

TABLE 1-UU

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P-75" SERIES ISO TYPE TIRES FOR DL MILLIMETRIC RIMS

Tire size designation <sup>1</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa) <sup>2</sup>								Test rim width (mm)	Minimum size factor (mm)	Section width <sup>3</sup> (mm)
	120	140	160	180	200	220	240	260			
P195/75 R 370 -----	465	500	535	565	595	625	655		135	841	194

<sup>1</sup> The designated cold inflation pressure may be increased to a maximum of 300 kPa to meet special vehicle performance requirements with no increase in load.

<sup>2</sup> The letter "D" for diagonal and "R" for bias belted may be used in place of the "R".

<sup>3</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

TABLE 1-VV

TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P-60" SERIES ISO TYPE TIRES FOR TR or JM MILLIMETRIC RIMS

Tire size designation <sup>1</sup>	Maximum tire loads (pounds) at various cold inflation pressures (kPa) <sup>2</sup>								Test rim width (mm)	Minimum size factor (mm)	Section width <sup>3</sup> (mm)
	120	140	160	180	200	220	240	260			
P205/60 R 390 -----	425	460	490	520	545	575	600		150	830	205

<sup>1</sup> The designated cold inflation may be increased to a maximum of 300 kPa to meet special vehicle performance requirements with no increase in load.

<sup>2</sup> The letter "D" for diagonal and "R" for bias belted may be used in place of the "R".

<sup>3</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.



**TABLE I-WW**  
TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P65" SERIES ISO TYPE TIRES

Tire size designation	Maximum tire loads (kilograms) at various cold inflation pressures (kPa) <sup>1</sup>									Test rim width	Minimum size factor	Section width <sup>2</sup>
	120	140	160	180	200	220	240	260	280	(mm)	(mm)	(mm)
P185-65 R 14 .....	360	380	415	440	465	485	510	530	550	5	767	184
P195-65 R 13 .....	375	400	430	455	480	505	525	550	570	5½	767	196
P205-65 R 14 .....	425	460	495	525	550	580	605	630	655	5½	811	203
P215-65 R 14 .....	465	500	535	570	600	630	655	680	710	6	837	216
P215-65 R 15 .....	485	525	560	595	625	660	685	715	740	6	862	216
P255-65 R 15 .....	650	705	750	795	840	880	920	960	995	7	950	255

<sup>1</sup> The letter "D" for diagonal and "B" for bias belted may be used in place of the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

**TABLE I-XX**  
TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P70" SERIES ISO TYPE TIRES  
ALL MILLIMETRIC FOR TR OR JM RIMS

Tire size designation <sup>2</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa) <sup>1</sup>									Test rim width	Minimum size factor	Section width <sup>1</sup>
	120	140	160	180	200	220	240	260	280	(mm)	(mm)	(mm)
P185-70 R365 .....	325	350	375	395	420	440	460			120	752	167

<sup>1</sup> The designated cold inflation pressures may be increased to a maximum of 300 kPa to meet special vehicle performance requirements with no increase in load.

The letter "D" for diagonal and "R" for bias belted may be used in place of the "R".

Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

**TABLE I-YY**  
TIRE LOAD RATINGS, TEST RIMS, MINIMUM SIZE FACTORS, AND SECTION WIDTHS FOR "P55" SERIES ISO TYPE TIRES

Tire size designation <sup>2</sup>	Maximum tire loads (kilograms) at various cold inflation pressures (kPa) <sup>1</sup>									Test rim width	Minimum size factor	Section width
	120	140	160	180	200	220	240	260	280	(mm)	(mm)	(mm)
P235-55 R 14 .....	535	575	615	655	690	725	755	785	815	7	875	235
P255-55 R 15 .....	560	605	645	685	720	755	790	825	855	7	900	255

<sup>1</sup> The letter "D" for diagonal and "R" for bias belted may be used in place of the "R".

<sup>2</sup> Actual section width and overall width shall not exceed the specified section width by more than the amount specified in S4.2.2.2.

TABLE II—MINIMUM BREAKING ENERGY VALUES (INCH-POUNDS)

TABLE II—A—FOR BIAS PLY TIRES WITH DESIGNATED SECTION WIDTH 6 INCHES AND ABOVE

<i>Cord Material</i>	<i>Maximum Permissible Inflation Pressure</i>					
	<i>32 lb/in<sup>2</sup></i>	<i>36 lb/in<sup>2</sup></i>	<i>40 lb/in<sup>2</sup></i>	<i>240 kPa</i>	<i>280 kPa</i>	<i>300 kPa</i>
Rayon	1650 in.-lbs.	2475 in.-lbs.	3300 in.-lbs.	1650 in.-lbs.	3300 in.-lbs.	1,650 in.-lbs.
Nylon or Polyester	2600 in.-lbs.	3900 in.-lbs.	5200 in.-lbs.	2600 in.-lbs.	5200 in.-lbs.	2,600 in.-lbs.

TABLE II—B—FOR BIAS PLY TIRES WITH DESIGNATED SECTION WIDTH BELOW 6 INCHES

<i>Cord Material</i>	<i>Maximum Permissible Inflation Pressure</i>					
	<i>32 lb/in<sup>2</sup></i>	<i>36 lb/in<sup>2</sup></i>	<i>40 lb/in<sup>2</sup></i>	<i>240 kPa</i>	<i>280 kPa</i>	<i>300 kPa</i>
Rayon	1000 in.-lbs.	1875 in.-lbs.	2500 in.-lbs.	1000 in.-lbs.	2500 in.-lbs.	1,000 in.-lbs.
Nylon or Polyester	1950 in.-lbs.	2925 in.-lbs.	3900 in.-lbs.	1950 in.-lbs.	3900 in.-lbs.	1,950 in.-lbs.

TABLE II—C—FOR RADIAL PLY TIRES

<i>Size Designation</i>	<i>Maximum Permissible Inflation Pressure</i>					
	<i>32 lb/in<sup>2</sup></i>	<i>36 lb/in<sup>2</sup></i>	<i>40 lb/in<sup>2</sup></i>	<i>240 kPa</i>	<i>280 kPa</i>	<i>300 kPa</i>
Below 160 Millimeters	1950 in.-lbs.	2925 in.-lbs.	3900 in.-lbs.	1950 in.-lbs.	3900 in.-lbs.	1,950 in.-lbs.
160 Millimeters or above	2600 in.-lbs.	3900 in.-lbs.	5200 in.-lbs.	2600 in.-lbs.	5200 in.-lbs.	2,600 in.-lbs.

TABLE II—D—FOR TIRES WITH 60 PSI MAXIMUM PERMISSIBLE INFLATION PRESSURE AND MAXIMUM LOAD RATING OF 880 POUNDS AND ABOVE

<i>Cord Material</i>	<i>Inch Pounds</i>
Rayon	1650
Nylon or Polyester	2600

TABLE II—E—FOR TIRES WITH 60 PSI MAXIMUM PERMISSIBLE INFLATION PRESSURE AND MAXIMUM LOAD RATING BELOW 880 POUNDS

<i>Cord Material</i>	<i>Inch Pounds</i>
Rayon	1000
Nylon or Polyester	1950

TABLE III—TEST INFLATION PRESSURES

Maximum Permissible Inflation Pressure	32 psi	36 psi	40 psi	60 psi	240 kPa	280 kPa	300 kPa
Pressure to be used in tests for physical dimensions, bead unseating, tire strength, and tire endurance	24 psi	28 psi	32 psi	52 psi	180 kPa	220 kPa	180 kPa
Pressure to be used in test for high-speed performance	30 psi	34 psi	38 psi	58 psi	220 kPa	260 kPa	220 kPa



## PREAMBLE TO MOTOR SAFETY STANDARD NO. 110

### Tire Selection and Rims—Passenger Cars (Docket No. 18)

A proposal to amend § 371.21 of Part 371, Initial Federal Motor Vehicle Safety Standards, by adding Standard No. 109, New Pneumatic Tires—Passenger Cars; and Standard No. 110, Tire Selection and Rims—Passenger Cars; was published in the *Federal Register* on July 22, 1967 (32 F.R. 10812).

Interested persons have been afforded an opportunity to participate in the making of the amendment.

Compliance with the labeling requirements of Standard No. 109, established in accordance with section 201 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1421), and the tread wear indicator requirements found in the standard may necessitate the modification of tire molds. Several tire manufacturers requested that additional time be allowed to modify these tire molds. After evaluation of all data received, it was determined that an effective date of August 1, 1968, for paragraphs S4.2.1 and S4.3 would provide a reasonable amount of time to accomplish the necessary mold modifications.

Many comments stated that no practical way is known to permanently affix a label onto the tire sidewall, as would have been required by proposed paragraph S4.3.1 until such time as a label is molded into or onto the tire. Accordingly, S4.3.1 of Standard No. 109 has been modified to permit, until August 1, 1968, the use of a label or tag containing the required labeling information not permanently molded into or onto the tire.

Many comments objected to the limitations imposed by the maximum tire section width dimensions specified in the tables of the notice. The Administrator has determined that additional latitude is necessary, and therefore Standard No. 109 specifies that to provide for tire

growth, protective side ribs, ornamentation, manufacturing tolerances, and design differences for each tire size designation actual tire section width and overall tire width may exceed the section width specified in Table I of the Standard by 7 percent.

In response to requests, additional tire size designations and load/inflation schedules were added when necessary information was available. In addition, Table I of Standard No. 109 and Table II of Standard No. 110 have been combined to collate related information.

Persons desiring an amendment to Standard No. 109 adding tires not presently listed, should submit sufficient pertinent information relative to these tires in 10 copies to the Secretary of Transportation; Attention: Motor Vehicle Safety Performance Service, National Highway Safety Bureau, Federal Highway Administration, U.S. Department of Transportation, Washington, D.C. 20591.

Data received have shown that the rim references indicated in the proposed Standards were inadequate in coverage. Therefore, a more comprehensive list of foreign and domestic trade association publications containing appropriate rim standards or practices has been referenced in the Standards.

Data received demonstrated that the bead unseating and tire strength requirements were inappropriate for certain groups of small tires. Accordingly, tires were regrouped and the test values revised to provide requirements for these small tires that are proportional to the requirements for other sizes of tires.

Although Standard No. 109 applies to tires for use on passenger cars manufactured after 1948, some of the tires covered by the Standard may also be used on earlier model vehicles.

The testing procedures set forth in the Standard, size designations, and related data are based upon existing standards or practices using information furnished by such organizations as the Society of Automotive Engineers, Federal Trade Commission, Tire and Rim Association, European Tire and Rim Technical Organization, Japanese Standards Association, Japan Automobile Tire Manufacturers Association, Rubber Manufacturers Association, Tyre Manufacturers Conference, Ltd., and the Society of Motor Manufacturers and Traders, Ltd.

To permit production of sufficient quantities of tires complying with the requirements of Standard No. 109 after its effective date of January 1, 1968, Standard No. 110 applies to passenger cars manufactured on or after April 1, 1968.

A single table of load/pressure values for radial ply tires was included in the notice and this was supported by many comments. Other comments stressed the importance of including different load/pressure values for optimum tire deflections. Although a single table of load/pressure schedules combining these values for these radial ply tires would be desirable, it was not considered advisable to include such a table in the standard promulgated under the present notice.

In accordance with section 201 of the Act, S4.3 of Standard No. 109 requires that each tire be labeled with the name of the manufacturer or his brand name and an approved code mark to permit the tire seller to identify the tire manufacturer upon the purchaser's request. Any tire manufacturer desiring an approved code mark should apply for his code number assignment to the Secretary of Transportation; Attention: Motor Vehicle Safety Performance Service, Na-

tional Highway Safety Bureau, Federal Highway Administration, U.S. Department of Transportation, Washington, D.C. 20591.

Several comments, including the suggested use of a "load range" system, will be considered for future rule-making. (See 32 F.R. 14279).

Since it was clearly the intent of the Congress that, to enhance the safety of the general public, Federal Motor Vehicle Safety Standards for tires become effective as soon as practicable, and since no adverse comments were received pertinent to the proposed effective date presented in the advance notice of proposed rulemaking (32 F.R. 2417), at a Government-industry technical meeting, and in the notice of proposed rulemaking (32 F.R. 10812), and no undue burden was demonstrated, good cause is shown that an effective date earlier than 180 days after issuance is in the public interest.

In consideration of the foregoing, § 371.21 of Part 371, Initial Federal Motor Vehicle Safety Standards, is amended . . . Standard No. 109 becomes effective January 1, 1968, and Standard No. 110 becomes effective April 1, 1968.

(Secs. 103, 119, National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407); delegation of authority of Mar. 31, 1967 (32 F.R. 5606), as amended Apr. 6, 1967 (32 F.R. 6495), July 27, 1967 (32 F.R. 11276), Oct. 11, 1967 (32 F.R. 14277), November 8, 1967).

Issued in Washington, D.C., on November 8, 1967.

Lowell K. Bridwell,  
Federal Highway Administrator

**32 F.R. 15792**  
**November 16, 1967**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 110

## Tire Selection and Rims—Passenger Cars (Docket No. 18R)

Motor Vehicle Safety Standard No. 109 (32 F.R. 15792), as amended (32 F.R. 17938), specifies tire dimensions and laboratory test requirements for bead unseating resistance, strength, endurance, and high speed performance; defines tire load ratings; and specifies labeling requirements for new pneumatic tires for use on passenger cars manufactured after 1948. Motor Vehicle Safety Standard No. 110 (32 F.R. 15798) specifies tire selection and rims requirements to prevent tire overloading.

Figures 2 and 3 of Standard No. 109 are drawings of the bead unseating test fixture used in performing the test specified in S5.2.

Section S5.4.2.3 specifies the 50 miles-per-hour test schedules for the tire endurance test.

Tables I-A through I-H list the various tire types and sizes with proper load and inflation values.

After review of Petitions for Reconsideration received under Docket No. 18R, the Administrator has determined that certain parts of Standard No. 109 require clarification, the tire tables need revision to include a number of new sizes and there is need for a table listing a new series of tires.

In addition, Standard No. 110 requires an additional table to list alternative rims for tire and rim combinations not presently covered by the standard.

Therefore, Standard No. 109 is being amended by—

(a) Revising Figures 2 and 3, which depict the bead unseating test fixture, by adding one additional dimension to Figure 2 and a center line and tangent line to Figure 3;

(b) Specifying that the test required by S5.4.2.3 be conducted without pressure adjustment or other interruption;

(c) In table I-A through I-H

(1) Adding additional tire size designations;

(2) Adding footnotes permitting the use of the letter "H", "S", or "V";

(3) Correcting typographical errors;

(d) Adding Table I-J which lists a new series of low section height tires.

In addition, Standard No. 110 is being amended by—

(a) Revising paragraph S4.4.1 to include alternative rims, not presently listed in the references cited in the definition of Test Rim in S3 of Standard No. 109; and

(b) Adding a new table of approved alternative rims.

Since these amendments provide clarification and alternative means of compliance, relieve restrictions, and impose no additional burden on any person, notice and public procedure hereon are unnecessary. The Administrator finds, for good cause shown, that no preparatory period is needed to effect compliance and it is therefore in the public interest to make the amendments effective immediately.

In consideration of the foregoing, § 371.21 of Part 371, Federal Motor Vehicle Safety Standards, Standard No. 109 (32 F.R. 15792), as amended (32 F.R. 17938), and Standard No. 110 (32 F.R. 15798), are amended, effective April 11, 1968. . . .

(Secs. 103, 119, National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407); delegation of authority of March 31, 1967 (32 F.R. 5606), as amended Nov. 8, 1967 (32 F.R. 15710)).

Issued in Washington, D.C., on April 11, 1968.

Lowell K. Bridwell,  
Federal Highway Administrator.

33 F.R. 5944  
April 18, 1968





# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 110

## Tire Selection and Rims—Passenger Cars (Docket No. 18)

On September 11, 1968, the Federal Highway Administration published in the *Federal Register* amendments to Standard Nos. 109 and 110 (33 F.R. 12842). Omitted from publication as part of Appendix A of Standard No. 109 were Tables 1-A through 1-J. For the convenience of persons using the tables the preamble to the amendments published September 11, 1968, and the text of the amendments, as corrected by the addition of the omitted tables are published below. Additionally, Appendix A of Standard No. 110 has been changed to specify the information that should be submitted with requests for the addition of alternative rim sizes.

Federal Motor Vehicle Safety Standard No. 109 (32 F.R. 15792), as amended (32 F.R. 17938 and 33 F.R. 5944), specifies tire dimensions and laboratory test requirements for bead unseating resistance, strength, endurance and high speed performance; defines tire load ratings; and specifies labeling requirements for new pneumatic tires for use on passenger cars manufactured after 1948. Motor Vehicle Safety Standard No. 110 (32 F.R. 15798) as amended (33 F.R. 5949) specifies tire selection and rim requirements to prevent tire overloading.

Tables 1-A through 1-J of Standard No. 109 list various tire types and sizes with proper load and inflation values.

Standard No. 109 is being amended to designate Tables 1-A through 1-J as Appendix A of Standard No. 109.

In addition, Table 1-H is being amended by adding additional tire size designations.

Table I of Standard No. 110, is a list of alternative rims for tire and rim combinations that are not contained in any reference in § 3 of Standard No. 109.

Standard No. 110 is being amended to designate Table I as Appendix A of Standard No. 110.

In addition, the table is being amended by adding, as alternative rims for tire size 8.55 x 15, rim sizes 5½-JK, 5½-JJ and 5½-J; F70-14, rim size 7JJ; and G70-14, rim size 7JJ.

Additionally, guidelines by which persons requesting routine additions to Appendix A of Standard No. 109 and Appendix A of Standard No. 110, are set forth as introductory language to both appendices. The guidelines provide an abbreviated rulemaking procedure for adding tire sizes to Standard No. 109, whereby the addition becomes effective 30 days from date of publication in the *Federal Register* if no comments are received. If comments objecting to the amendment warrant, the Administration will provide for additional rulemaking pursuant to the Rule Making Procedures for Motor Vehicles Safety Standards (23 C.F.R. 216).

Since these amendments provide an alternative means of compliance, relieve restrictions, and impose no additional burdens on any person, notice and public procedure hereon are unnecessary and the Administrator finds, for good cause shown, that no preparatory period is needed to effect compliance and it is in the public interest to make the amendments effective immediately.

In consideration of the foregoing, Section 371.21 of Part 371, Federal Motor Vehicle Safety Standards, Standard No. 109 (32 F.R. 15792), as amended (32 F.R. 17938 and 33 F.R. 5944), and Standard No. 110, (32 F.R. 15798), as amended (33 F.R. 5949), are amended effective this date as set forth below.

**Effective: September 27, 1968**

These amendments are made under the authority of Sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation from the Secretary of Transportation, Part I of the Regulations of the Office of the Secretary (49 C.F.R. § 1.4(c)).

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Issued in Washington, D.C. on September 27, 1968.

John R. Jamieson, Deputy  
Federal Highway Administrator

**33 F.R. 14964**  
**October 5, 1968**

**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 110****Tire Selection and Rims****(Docket No. 74-25; Notice 2)**

This notice amends the definition of "test rim" in 49 CFR 571.109 (Motor Vehicle Safety Standard No. 109) and modifies related provisions of that section and section 571.110 (Motor Vehicle Safety Standard No. 110). A conforming amendment is made to similar provisions in section 571.119 (Motor Vehicle Safety Standard No. 119). The notice of proposed rulemaking on which this amendment is based was published on July 10, 1974 (39 F.R. 25329).

The definition of "test rim" has previous to this amendment referenced the 1967 and earlier editions of publications of various foreign and domestic tire and rim associations as the source for determining rim specifications and appropriate tire rim matching information for testing tires to the requirements of Motor Vehicle Safety Standard No. 109, and for equipping passenger cars pursuant to Motor Vehicle Safety Standard No. 110. The Rubber Manufacturers' Association petitioned that this reference be changed because the publications have become outdated in terms of the rim information they provide. This amendment, which adopts the proposed rule of July 10, 1974, in essentially the form proposed, deletes the references to the 1967 and earlier publications and substitutes for them the publications of the various associations current at the time of tire manufacture.

Under the amendment, a "test rim" will be any rim listed for use with a tire size designation in any of the current publications of the various foreign and domestic tire and rim associations. The listing will apply to all tires that fit the description (by tire size designation, use category, etc.) unless the publication itself or a separately published manufacturer's document states otherwise. A manufacturer wishing to

except any tire manufactured by him from any listing would be expected to request the association to publish the exception in its publication. If it does not, the manufacturer must himself publish the exception in his own listing, which he must distribute to his dealers, this agency, and to any member of the public on request. The language of the proposal is clarified, and a conforming amendment made to Standard No. 119 to show that an exception must be published in each association publication listing the tire and rim combination. The amendment further specifies that a "listing" of a rim must contain dimensional specifications, including diagrams, for the rim. This is necessary to provide for uniformity of rim dimensions and reflects the present practice of association publications of publishing such dimensional specifications. However, dimensional specifications or a diagram of a rim need not be included in manufacturers' separate listings if the specifications and diagram for the rim appear in each association publication where it is listed.

By referencing the current publications, the amendment ends the need for Appendix "A" of Standard No. 110, which lists tire rim combinations approved for use subsequent to the 1967 and earlier associations publications. The associations and various manufacturers should ascertain that all tire/rim combinations presently listed in that Appendix are incorporated into at least one of their respective publications before the effective date of this amendment. Moreover, the addition of new tire/rim combinations subsequent to the effective date becomes the sole responsibility of the industry. Appendix "A" of Standard No. 109, listing tire size designations, is not affected by this amendment.

An effect of the amended definition of test rim is to clarify this agency's position that each tire must be able to pass each performance requirement (except that for physical dimensions) of Standard No. 109 with any rim with which it is listed, regardless of rim width, unless that tire is specifically excepted from each listing where it appears. The requirements for physical dimensions must be met only on a test rim of the width specified for the tire size designation in Standard No. 109. A tire failing the requirements on any test rim would be considered as having failed the requirements on all test rims. This continues existing NHTSA enforcement policy.

One of the two comments received regarding the proposal objected to this aspect of the amendment, arguing that some manufacturers have traditionally certified conformity on the basis of test results using only the test rims of the specified test rim width and that no safety problems had been encountered. The NHTSA believes, however, that the interest of safety demands that manufacturers ensure that tires certified as conforming to Standard No. 109 will conform to the standard's requirements on any rim which the manufacturer lists for use with the tire and with which the tire may consequently be used in service. This position has been reflected in the guidelines for the additions of new tire rim combinations to the Appendix

of Standard No. 110, which have required that the manufacturer demonstrate conformity to Standard No. 109 on each newly requested rim. If a manufacturer doubts the ability of his tires to conform to the standard on certain recommended rims, he has the option of excepting his tires from being used with those rims. No other objections to the proposed rule were received.

In light of the above, amendments are made to 49 CFR §§ 571.109, 571.110, and 571.119 . . .

*Effective date:* August 5, 1975 for Standard No. 109 and 110; March 1, 1975, for Standard No. 119. The amendment to Standard No. 119 is of a clarifying nature, and should be made effective with the existing effective date of that standard. The amendment does not require substantial leadtime for conformity, and it is found for good cause shown that an effective date less than 180 days from publication is in the public interest.

(Secs. 103, 119, 201, 202, Pub. L. 89-563, 80 Stat. 718; 15 U.S.C. §§ 1392, 1407, 1421, 1422; delegation of authority at 49 CFR 1.51.)

Issued on January 31, 1975.

James B. Gregory  
Administrator

40 F.R. 5529  
February 6, 1975

## MOTOR VEHICLE SAFETY STANDARD NO. 110

### Tire Selection and Rims—Passenger Cars

**S1. Purpose and scope.** This standard specifies requirements for tire selection to prevent tire overloading.

**S2. Application.** This standard applies to passenger cars.

#### S3. Definitions.

“Accessory weight” means the combined weight (in excess of those standard items which may be replaced) of automatic transmission, power steering, power brakes, power windows, power seats, radio, and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

“Curb weight” means the weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

“Maximum loaded vehicle weight” means the sum of—

- (a) Curb weight;
- (b) Accessory weight;
- (c) Vehicle capacity weight; and
- (d) Production options weight.

“Normal occupant weight” means 150 pounds times the number of occupants specified in the second column of Table I.

“Occupant distribution” means distribution of occupants in a vehicle as specified in the third column of Table I.

“Production options weight” means the combined weight of those installed regular production options weighing over 5 pounds in excess of those standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

TABLE I  
Occupant Loading and Distribution for Vehicle Normal Load for Various Designated Seating Capacities

<i>Designated Seating Capacity, Number of Occupants</i>	<i>Vehicle Normal Load, Number of Occupants</i>	<i>Occupant Distribution in a Normally-Loaded Vehicle</i>
2 thru 4	2	2 in front
5 thru 10	3	2 in front 1 in second seat

“Vehicle capacity weight” means the rated cargo and luggage load plus 150 pounds times the vehicle’s designated seating capacity.

“Vehicle maximum load on the tire” means that load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

“Vehicle normal load on the tire” means that load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight (distributed in accordance with Table I) and dividing by two.

#### S4. Requirements.

**S4.1 General.** Passenger Cars shall be equipped with tires that meet the requirements of Motor Vehicle Safety Standard No. 109, “New Pneumatic Tires—Passenger Cars.”

##### S4.2 Tire load limits.

**S4.2.1** The vehicle maximum load on the tire shall not be greater than the applicable maximum load rating specified in Table I of Motor Vehicle Safety Standard No. 109 for the tire’s size designation and type.

**S4.2.2** The vehicle normal load on the tire shall not be greater than the test load used in the high speed performance test specified in S5.5 of Motor Vehicle Safety Standard No. 109 for that tire.

**S4.3 Placard.** A placard, permanently affixed to the glove compartment door or an equally accessible location, shall display the—

- (a) Vehicle capacity weight;
- (b) Designated seating capacity (expressed in terms of total number of occupants and in terms of occupants for each seat location);
- (c) Vehicle manufacturer's recommended cold tire inflation pressure for maximum loaded vehicle weight and, subject to the limitations of S4.3.1, for any other manufacturer-specified vehicle loading condition; and
- (d) Vehicle manufacturer's recommended tire size designation.

**S4.3.1** No inflation pressure other than the maximum permissible inflation pressure may be specified unless—

- (a) It is less than the maximum permissible inflation pressure;
- (b) The vehicle loading condition for that pressure is specified; and

(c) The tire load rating from Table I of Motor Vehicle Safety Standard No. 109 for the tire at that pressure is not less than the vehicle load on the tire for that vehicle loading condition.

#### **S4.4 Rims.**

**S4.4.1 Requirements.** Each rim shall:

- (a) Be constructed to the dimensions of a rim that is listed pursuant to the definition of "test rim" in paragraph S3. of § 571.109 (Standard No. 109) for use with the tire size designation with which the vehicle is equipped.
- (b) In the event of rapid loss of inflation pressure with the vehicle traveling in a straight line at a speed of 60 miles per hour, retain the deflated tire until the vehicle can be stopped with a controlled braking application.

**33 F.R. 14969  
October 5, 1968**

**PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO. 111**  
**Rearview Mirrors—Passenger Cars and Multipurpose Passenger Vehicles**  
**(Docket No. 13)**

Motor Vehicle Safety Standard No. 111 (32 F.R. 2413) specifies requirements for rearview mirrors for use in passenger cars, multipurpose passenger vehicles, and passenger car and multipurpose passenger car equipment.

Paragraph S2, entitled "Application" of Motor Vehicle Safety Standard No. 111 (32 F.R. 2413) requires that the application of the Standard be as follows: "This standard applies to passenger cars, multipurpose passenger vehicles, and passenger car and multipurpose passenger vehicle equipment."

Paragraph S3.2.1.2 entitled "Mounting" of Motor Vehicle Safety Standard No. 111 (32 F.R. 2413) requires that outside mirrors installed on passenger cars and multipurpose passenger vehicles be mounted as follows: "The mounting shall provide a stable support for the mirror and neither the mirror nor the mounting shall protrude further than the widest part of the vehicle body, except to the extent necessary to meet the requirements of S3.2.1.1."

The National Traffic Safety Agency has determined that the mirror mounting may exceed the width of the vehicle to the extent necessary

to produce a field of view meeting or exceeding the requirements of paragraph S3.2.1.1 of Standard No. 111 and that it would not be practicable to extend the application of the standard to replacement parts for vehicles manufactured before the effective date of the standard. Therefore, the standard is being amended to apply to passenger cars and multipurpose passenger vehicles, and to permit a mirror to protrude further than the widest part of the vehicle body to the extent necessary to produce a field of view meeting or exceeding the field-of-view requirements of the standard.

This amendment is made under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C., secs. 1392, 1407) and becomes effective January 1, 1968.

Issued in Washington, D.C., on March 29, 1967.

Lowell K. Bridwell,  
 Acting Under Secretary of  
 Commerce for Transportation  
**33 F.R. 5498**  
**April 4, 1967**





# **PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 111**

## **Rearview Mirrors**

**(Docket No. 74-20; Notice 2)**

This notice amends Standard No. 111, *Rearview Mirrors* (49 CFR 571.111) to allow installation of truck-type mirror systems in multipurpose passenger vehicles and to extend the coverage of the standard to trucks and buses.

The NHTSA proposed in a notice published on May 1, 1974 (39 F.R. 15143) to amend Standard No. 111, to specify minimum requirements for mirror size, capability, and location which would be applicable to all trucks, buses, and motorcycles, and to establish an option which would allow multipurpose passenger vehicles to meet either the present passenger-car mirror requirements or to satisfy the requirements proposed in the notice for trucks and buses. Standard No. 111 currently applies only to passenger cars and multipurpose passenger vehicles, specifying the same rearview mirror requirements for each. The NHTSA has determined that a need exists to extend the standard's coverage to other vehicle types that presently lack uniform Federal regulation in order to ensure observance of minimum mirror performance levels essential to motor vehicle safety.

The NHTSA also proposed in the notice published May 1, 1974 to require that all mirrors required by the standard, except those specified for motorcycles, be designed to reflect an image of unit magnification, thereby limiting any deviation from unit magnification to normal production variations and not variations which are the result of design. To this end it was proposed that the term "substantially" be deleted where it modifies "unit magnification" in the text of Standard No. 111.

Interested persons were afforded an opportunity to submit comments on the proposal by July 1, 1974 and due consideration has been given to the 36 comments received.

Two commenters opposed deletion of the term "substantial" where it modifies "unit magnification" on the ground that only mirrors of precisely unit magnification will now be acceptable. This view is erroneous. The interpretation followed by the NHTSA—and proposed to be incorporated in Standard No. 111 in this issue of the Federal Register—is that deviations from unit magnification are acceptable under the standard as amended below provided that the deviations do not exceed normal manufacturing tolerances.

All comments generally agreed with the NHTSA proposal to extend a Federal rearview mirror standard to trucks, buses and motorcycles. However, several comments recommended mirrors of larger area than those required in the NHTSA proposal for trucks and buses, and suggested the use of convex mirrors in addition to unit magnification mirrors. Others recommended specific requirements for school buses and clarification of the proposed standard for motorcycles with regard to location and area of mirrors and use of convex mirrors. While the NHTSA considers that the proposed extension of the scope of Standard No. 111 to cover trucks and buses will promote efficient rearward visibility, it agrees with those who have urged further research regarding requirements for school buses and motorcycles. Consequently, Standard No. 111 is amended by this notice to extend the scope of its coverage to trucks and buses (including school buses). At the same time, however, the NHTSA is proposing in this issue of the Federal Register to amend Standard No. 111 to specify new rearview mirror requirements for motorcycles and further requirements for school buses.

The majority of comments favored the proposal that trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less comply either with the present passenger car mirror requirements, or with new requirements specifying outside mirrors on both sides of the vehicle with not less than 19.5 in<sup>2</sup> of reflective surface. This option is intended to overcome difficulties caused by classifying trucks, buses, and multipurpose passenger vehicles into groups specifying one mirror system adequate to fulfill the safety needs of all.

In addition, several commenters felt that heavy commercial vehicles, such as truck tractors, moving vans, and dump trucks, needed outside mirrors larger than 50 in<sup>2</sup>. The NHTSA has determined that the 50 in<sup>2</sup> mirror is adequate for buses and for smaller multipurpose passenger vehicles and trucks. However, for multipurpose passenger vehicles and trucks with a GVWR exceeding 25,000 pounds, a 75 in<sup>2</sup> mirror appears better to meet the safety need. Therefore, while this notice amends Standard No. 111 to require that multipurpose passenger vehicles, trucks, and buses with a GVWR of more than 10,000 pounds have outside mirrors of not less than 50 in<sup>2</sup> of reflective surface, the NHTSA is proposing in this issue of the Federal Register to amend Standard No. 111 to require mirrors of at least 75 in<sup>2</sup> of reflective surface on multipurpose passenger vehicles and trucks with a GVWR of 25,000 pounds or more.

Several persons contended with regard to multipurpose passenger vehicles, trucks, and buses that the provision requiring that mirrors be adjustable by "tilting in both the horizontal and vertical direction" did not take into account

the methods used to mount mirrors on these types of vehicles. Large mirrors, such as the so-called "West Coast" mirror which affords approximately 96 square inches of reflective surface area, are commonly mounted on rigid brace assemblies. These mirrors can be adjusted to provide the driver a view to the rear. However, once they are locked into place they are not capable of "tilting in both the horizontal and vertical direction." While mirrors mounted on ball sockets are fully adjustable in the horizontal and vertical directions by tilting, the NHTSA finds no reason to preclude the use of a mirror that possesses full adjustment capability and is only locked into a position once it satisfies the particular driver's viewing needs.

The NHTSA has decided to delete the words "by tilting" from the requirements for multipurpose passenger vehicles, trucks, and buses. The rule requires that mirrors on such vehicles "shall be adjustable in both the horizontal and vertical directions to view the rearward scene."

In consideration of the foregoing, Motor Vehicle Safety Standard No. 111, 49 CFR 571.111, is amended. . . .

*Effective date:* February 12, 1976.

(Secs. 103, 119, Pub. L. 89563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.51.)

Issued on: August 6, 1975.

James B. Gregory  
Administrator

40 F.R. 33825  
August 12, 1975

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 111

## Rearview Mirrors

(Docket 74-20; Notice 4)

This notice responds to four petitions for reconsideration of the notice published August 12, 1975 (40 F.R. 33825) which amended Federal Motor Vehicle Safety Standard No. 111, *Rearview Mirrors* (49 CFR 571.111), to allow installation of truck-type mirror systems in multi-purpose passenger vehicles and to extend coverage of the standard to trucks and buses.

Petitions for reconsideration were received from American Motors, Ford, General Motors, and the Motor Vehicle Manufacturers Association. They all asked the NHTSA to amend the standard to include a statement that the eye reference points to be used to determine compliance with the field of view requirements set forth in S4.1.1 and S4.2.1 may also be "at a nominal location appropriate for any 95th percentile driver." The NHTSA had determined by a previously published interpretation (32 F.R. 5498) that the standard in effect in April of 1967 permitted location of the driver's eye reference point in this manner. The recent amendments

did not change this aspect of the standard. However, in order to resolve any doubt concerning the applicability of the prior interpretation, the agency proposed in a notice published August 12, 1975, to formally reaffirm this interpretation by amending the standard. Petitioners seek immediate adoption of this proposal. The NHTSA agrees that the standard may be amended at this time to incorporate the previous interpretation. Therefore, Federal Motor Vehicle Safety Standard No. 111, *Rearview Mirrors* (49 CFR 571.111), is amended. . . .

*Effective date:* February 19, 1976.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued February 12, 1976.

James B. Gregory  
Administrator

**41 F.R. 7510**  
**February 19, 1976**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 111

## Rearview Mirrors

(Docket No. 74-20; Notice 5)

This notice amends Standard No. 111, *Rearview Mirrors*, to establish separate requirements for school buses, to increase the amount of reflective surface required for mirrors on multipurpose passenger vehicles and trucks with a GVWR of 25,000 pounds or more, and to extend the coverage of the standard to motorcycles.

By final rule published by the National Highway Traffic Safety Administration (NHTSA) on August 12, 1975 (40 F.R. 33825), Standard No. 111 (49 CFR 571.111) was amended to allow installation of truck-type mirror systems on multipurpose passenger vehicles and to extend the coverage of the standard to trucks and buses. As amended, the standard specified identical requirements for all types of buses. No distinction was made between commercial buses and school buses. No requirements were set out for motorcycles, as had been proposed in an earlier notice. Further, the standard imposed the same requirements for all multipurpose passenger vehicles, trucks, and buses with a GVWR of more than 10,000 pounds.

At the time of these changes, the NHTSA had completed further research and considered comments submitted by participants in that rule-making, and determined that the promulgation of separate rearview mirror requirements for motorcycles, school buses, and multipurpose passenger vehicles and trucks with a GVWR of 25,000 pounds or more would ensure the provision of minimum performance levels essential to motor vehicle safety. Therefore, a notice proposing these changes was also published on August 12, 1975 (40 F.R. 33828), and forms the basis of the present amendments.

Interested persons were afforded an opportunity to submit comments on the proposal by

September 26, 1975, and due consideration has been given to the 24 comments received. The National Motor Vehicle Safety Advisory Council did not take a position on the proposed amendments. (Active dockets concerning rearview mirrors are Docket No. 74-20 and Docket No. 71-3a.)

Commenters generally agreed with the NHTSA proposal to establish rearview mirror requirements for motorcycles. However, the Grote Manufacturing Company opoed the optional use of convex mirrors, contending that their use on motorcycles would be hazardous due to the distortion of distance characteristics of convex mirrors and the unfamiliarity of young drivers with them. The NHTSA has decided that both plane and convex motorcycle mirrors should be permitted, since available data does not support the contention that convex mirrors would be hazardous. The SAE Recommended Practice J268(a), "Rear View Mirrors—Motorcycles," specifies criteria for both plane and convex mirrors, and convex mirrors are presently in common usage on motorcycles.

There were also recommendations for both larger and smaller minimum reflective area requirements for motorcycle mirrors, and one recommendation for field-of-view performance requirements instead of a reflective area requirement. The amendment specifies 12.5 in<sup>2</sup> of reflective surface for a plane motorcycle mirror or 10 in<sup>2</sup> of reflective surface for a convex mirror. The NHTSA concludes that these required reflective surface areas will ensure a safe level of rearview visibility on motorcycles. The NHTSA finds the larger reflective area is needed on the plane mirror to offset its smaller field-of-view compared to that of a convex mirror. It is

contemplated that field-of-view performance requirements will be developed in future rulemaking.

The State of California commented that the SAE Recommended Practice J964a, specified in paragraph S11 of the standard, does not include a procedure for measuring the reflectance of convex mirrors, and suggested that a different procedure be specified. This suggestion is not well taken since, contrary to California's comment, the Recommended Practice does include a procedure for measuring convex mirror reflectance.

This amendment excepts school buses from the general bus requirements specified in paragraphs S6 and S7 of the standard, as amended by this notice, and establishes a new paragraph, S9, which requires school buses to be equipped with outside mirrors of unit magnification with not less than 50 in<sup>2</sup> of reflective surface and, except for forward control vehicles, with a convex cross-view mirror that has a minimum of 40 in<sup>2</sup> of reflective surface and an average radius of curvature not less than 12 inches and not greater than 25 inches.

The Grote Manufacturing Company contended that a 50 in<sup>2</sup> plane mirror on the right side of a school bus is inadequate, but the NHTSA believes that the 50 in<sup>2</sup> mirror in common use offers sufficient reflective area. Likewise, the NHTSA cannot agree with the views of the States of California and Illinois that a 40 in<sup>2</sup> cross-view mirrors is insufficient. Manufacturers can meet this requirement with the 7½ inch-diameter convex mirror which is commonly installed on school buses and which has been found to be adequate.

California also opposed the proposal that forward control school buses be excluded from the cross-view mirror requirements, stating that cross-view mirrors might be necessary on some forward control configurations. The NHTSA will consider this aspect of California's comment in future rulemaking in which the agency plans to develop field-of-view performance tests.

The State of Illinois, noting that the proposed amendments specified requirements for cross-view mirrors on school buses, recommended that the title of Standard No. 111, *Rearview Mirrors*, be shortened to "Mirrors." The NHTSA believes

that such a change is unnecessary and might create confusion since the industry has come to associate the existing title with the standard number. Therefore, there is no change in the title of Standard No. 111 even though this amendment adds a provision for cross-view mirrors.

Several commenters, including Blue Bird Body Company, the State of Illinois, and the Grote Manufacturing Company, disagreed with the preamble discussion concerning preemption that appeared in the notice proposing this amendment (40 F.R. 33828), in regard to Federal versus State requirements for rearview mirrors on school buses. There appears to be some confusion concerning the provision of the National Traffic and Motor Vehicle Safety Act of 1966, P.L. 89-563 (15 U.S.C. § 1392(d)) that allows states and political subdivisions to impose higher standards of performance than is required by Federal standards in the case of vehicles procured for their own use. Blue Bird Body Company commented that the interpretation in the preamble to the proposal "would allow local governments and other parties to specify potentially conflicting requirements with all NHTSA standards." This is incorrect. Section 103(d) of the National Traffic and Motor Vehicle Safety Act provides that no State or political subdivision of a State shall have authority to establish a motor vehicle safety standard governing the same aspect of performance of a motor vehicle or of motor vehicle equipment as a Federal standard, unless it is identical to the Federal standard. The only exception, also provided in section 103(d) of the Act, is that a State may establish a safety requirement applicable to motor vehicles or motor vehicle equipment procured for its own use if such requirement imposes a higher standard of performance than the Federal standard. This means that a State may impose requirements additional to those specified in an applicable Federal standard only if the vehicles are procured specifically for use by the State or its political subdivision. Therefore, a State may not require vehicles manufactured or sold for use by private parties to meet any standards not identical with Federal standards, even if the State standard would require a higher level of performance. Use of the phrase "higher standard of performance" means that the State standard must not

conflict with the Federal standard but may contain additional requirements.

The phrase does not mean that a State standard will be subjectively analyzed as a whole to determine its comparable worth in safety terms in relation to a Federal standard. Such an interpretation would create impracticable results. Finally, as stated in the preamble of the notice proposing these amendments, the National Traffic and Motor Vehicle Safety Act of 1966 does not prohibit a nongovernmental purchaser of a vehicle from contracting with a manufacturer or dealer for additional safety features beyond those required by Federal motor vehicle safety standards.

The majority of comments favored the proposal that multipurpose passenger vehicles and trucks with a GVWR of more than 10,000 and less than 25,000 pounds, and buses, other than school buses, with a GVWR of more than 10,000 pounds continue to be equipped with outside mirrors of unit magnification on both sides of the vehicle, each with not less than 50 in<sup>2</sup> of reflective surface.

The Teamsters Union recommended that the proposed 75-square-inch reflective area requirement for trucks and multipurpose vehicles with a GVWR of 25,000 pounds or more be increased to a 96-square-inch requirement. The NHTSA has carefully considered the views of the Teamsters, but must conclude, based on available studies, that the proposed 75-square-inch mirror is adequate for safety purposes. Further, a larger reflective area requirement would prohibit the new truck mirrors that are designed to be mounted below the driver's line of sight. Use of these mirrors is encouraged by the agency since they do not obstruct the forward view of the driver, as do the larger "West Coast" mirrors.

The obstruction of the forward view due to the mounting location of some of the larger mirrors can create a potential safety hazard, as pointed out by several commenters. However, rather than incorporating mounting location as a requirement of the standard at this time, the NHTSA believes the problem can better be solved through viewing performance requirements to be promulgated in the future.

The State of California suggested that minimum width requirements be specified for side-

mounted mirrors, and that truck classification be based on a system other than GVWR. We see no need to specify width requirements. The California comments provided no evidence, and the agency has no indication, that manufacturers would circumvent the purposes of the standard by providing long and narrow side mirrors. No circumvention of this sort has occurred in the case of mirrors currently available on the market. The NHTSA recognizes that truck classification based on GVWR creates some artificiality in the applicability of requirements, but other methods of classification create similar problems. These problems can better be corrected in future rule-making with the specification of field-of-view performance requirements.

Finally, several commenters recommended that combination plane and convex mirrors be required for large multipurpose passenger vehicles and trucks, in order to increase the field of view. The NHTSA agrees that the use of convex mirrors on larger vehicles would be of some benefit because of the increased field of view they would provide. Therefore, the agency publishes in this issue of the *Federal Register* a proposal to amend Standard No. 111 to specify the optional use of plane and convex mirror combinations on buses other than school buses, multipurpose passenger vehicles, and trucks that have a GVWR of 10,000 pounds or more.

This amendment also clarifies the deflection requirements for inside rearview mirror mountings on passenger cars. The amendment specifies that the mounting is required to "break away" when the test force is applied to the reflective surface of the mirror in any direction that forms an angle of up to 45° with the forward longitudinal direction. The amendment clarifies that the mounting is required to deflect, collapse, or "break away" when the force is applied to the reflective surface in a generally forward direction.

The provision of Standard No. 111 regarding mirror construction is amended to provide that the "average" reflectance value of the reflective film employed on any mirror required by the standard must be at least 35 percent. The purpose of this amendment is to make clear that the failure of any individual point or points on the reflective surface of a mirror to reflect 35 percent

of a light source does not constitute a failure to comply with the standard if the average reflectance of the total points comprising the reflective surface is at least 35 percent.

The amendment incorporates into the mirror construction requirements the current test procedures for measurement of average reflectance value found in the Society of Automotive Engineers Recommended Practice J96a, August, 1974.

Standard No. 111 is further amended by this notice to add a definition of the term "mirror of unit magnification." This definition incorporates a previous NHTSA interpretation to the effect that precise "unit magnification" is not required by the standard if any deviations are not in excess of normal manufacturing tolerances. The definition provides that a prismatic day-night adjustment rearview mirror, one of whose positions provides unit magnification, is considered a unit magnification mirror.

The notice proposing these amendments (40 F.R. 33828) included a proposal that the term "driver's eye reference point" referred to in S5.1.1 and S5.2.1 of the standard as amended by this notice, be changed to "driver's eyes reference points" in order to more accurately describe the locations to which the term refers. The notice further proposed that the standard be amended to permit location of the driver's eye reference point at "a nominal location appropriate for any 95th percentile male driver," as had been established in a previously published NHTSA interpretation (32 F.R. 5498). At the time of the proposal, Standard No. 111 only provided that the location of the driver's eye reference point "shall be that established in Motor Vehicle Safety Standard No. 104." The proposal provided that the location of the eye reference point could be derived through either formula.

In response to four petitions for reconsideration, by final rule issued February 19, 1976 (41 F.R. 7510), Standard No. 111 was amended to partially adopt the proposed changes regarding driver's eye reference point. The standard was amended to incorporate the previous NHTSA interpretation which allowed location of the driver's eye reference point "at a nominal location appropriate for any 95th percentile adult male driver." The petitioners had requested that

this aspect of the proposal be adopted immediately.

Today's amendment completes the adoption of the proposed changes by modifying the term "driver's eye reference point" to read "driver's eye reference points." As amended, the last sentence of S5.1.1 and S5.2.1 now reads: "The location of the driver's eye reference points shall be those established in Motor Vehicle Safety Standard No. 104 (§ 571.104) or a nominal location appropriate for any 95th percentile adult male driver." Even with these changes, however, there still appears to be much confusion concerning this aspect of the field-of-view performance requirements for passenger cars. General Motors has recommended that the reference to Standard No. 104 in paragraphs S5.1.1 and S5.2.1 be deleted, since that standard's designation of "eye reference points" is ambiguous. In light of the evident confusion, the NHTSA is proposing in this issue of the *Federal Register* to amend paragraphs S5.1.1 and S5.2.1 of Standard No. 111 to specify that location of driver's eye reference points shall be determined in accordance with the procedure found in SAE Recommended Practice J1050, "Describing the Driver's Field of View," Section 7 (September, 1973). References to Standard No. 104 and to the "nominal location" method of determining the eye reference points would be deleted from the standard.

These amendments should have only a minimal economic and environmental impact, since manufacturers are currently equipping vehicles with the same type mirrors that are required by the amendments.

In consideration of the foregoing, the amendments of Motor Vehicle Safety Standard No. 111 (49 CFR 571.111) are adopted without change. . . .

*Effective date:* February 26, 1977.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on August 17, 1976.

John W. Snow  
Administrator

41. F.R. 36023  
August 26, 1976



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 111

## Rearview Mirrors

(Docket No. 74-20; Notice 07)

This notice responds to petitions for reconsiderations of a recent amendment of Standard No. 111, *Rearview Mirrors*, by reducing upcoming mirror size requirements to the level presently specified by the standard.

By notice published August 26, 1976 (41 F.R. 36023), paragraph S8.1 of Standard No. 111 (49 CFR 571.111) was established to increase from 50 square inches to 75 square inches the amount of reflective surface required for plane mirrors on multipurpose passenger vehicles and trucks with a GVWR of 25,000 pounds or more. The new requirement becomes effective February 26, 1977. In the same issue of the *Federal Register* the NHTSA published a proposal to further amend Standard 111 to provide for the optional use of plane and convex mirror combinations on multipurpose passenger vehicles and trucks with a GVWR of 25,000 pounds or more (41 F.R. 36037). The proposed requirements would allow manufacturers to equip their larger vehicles with either a 75-square-inch mirror of unit magnification or a combination mirror system comprised of a 45-square-inch plane mirror and a 25-square-inch convex mirror.

Mr. M. W. Urban and the White Motor Company petitioned the NHTSA to revoke the amendment requiring vehicles over 25,000 pounds to have plane mirrors with 75 square inches of reflective surface. Petitioners were concerned that the proposal to allow plane and convex combinations for the larger vehicles would not be made a final rule by the time of the February 26, 1977, effective date for the 75-square-inch plane mirror requirement. They noted that this would have the effect of prohibiting the use of combination mirrors after February 26, 1977, although they are presently allowed and would be allowed

again in the future under the outstanding proposal.

The NHTSA has determined that petitioners' argument has merit. As stated in the preamble to the August 26, 1976, proposal, the NHTSA recognizes that the larger vehicles (GVWR greater than 25,000 pounds) have rearward visibility problems that can create potential safety hazards, and that the use of both plane and convex mirrors on these vehicles should help to increase rearward visibility. The NHTSA does not wish to preclude the combination mirror systems currently being used on the MPV's and trucks, since most of these systems would meet dimensional specifications set forth in the outstanding proposal.

While the NHTSA concluded that the larger plane mirrors are necessary on heavy vehicles not equipped with combination mirrors, many manufacturers are already equipping these vehicles with "West Coast" mirrors that have 96 square inches of reflective surface. Therefore, postponement of the 75-square-inch plane mirror requirement for heavy vehicles should not significantly reduce motor vehicle safety.

The rearview mirror amendments published on August 26, 1976, established the requirement that school buses be equipped with plane mirrors having 50 square inches of reflective surface. Mr. Urban's petition for reconsideration also requested that this requirement be postponed and modified to include separate requirements for small school buses. The petition stated that smaller plane mirrors in combination with convex mirrors should be allowed on van-type school buses on an optional basis.

The NHTSA considered all comments to the notice proposing these school bus requirements prior to issuance of the final rule. It was determined that 50-square-inch plane mirrors were necessary on school buses to provide the driver an adequate view to the rear along both sides of the vehicle. Since Mr. Urban did not submit his views regarding van-type school buses during the specified comment period, his comments will only be considered in future rulemaking on this subject.

In consideration of the foregoing, the number "75 in<sup>2</sup>" in paragraph S8.1 of Standard No. 111 (as published August 26, 1976 (41 F.R. 36023)

and effective February 26, 1976) is amended to read "50 in<sup>2</sup>."

*Effective date:* The change may be made immediately to the *Federal Register* text published August 26, 1976 (41 F.R. 36023) and is effective February 26, 1977.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on December 22, 1976.

John W. Snow  
Administrator

**41 F.R. 56813**  
**December 30, 1976**

## MOTOR VEHICLE SAFETY STANDARD NO. 111

### Rearview Mirrors

**S1. Scope.** This standard specifies requirements for the performance and location of rearview mirrors.

**S2. Purpose.** The purpose of this standard is to reduce the number of deaths and injuries that occur when the driver of a motor vehicle does not have a clear and reasonably unobstructed view to the rear.

**S3. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, buses, school buses and motorcycles.

**S4. Definition.** "Unit magnification mirror" means a plane or flat mirror with a reflective surface through which the angular height and width of the image of an object is equal to the angular height and width of the object when viewed directly at the same distance except for flaws that do not exceed normal manufacturing tolerances. For the purposes of this regulation a prismatic day-night adjustment rearview mirror one of whose positions provides unit magnification is considered a unit magnification mirror.

#### **S5. Requirements for passenger cars.**

**S5.1. Inside rearview mirror.** Each passenger car shall have an inside rearview mirror of unit magnification.

**S5.1.1. Field of view.** Except as provided in S5.3, the mirror shall provide a field of view with an included horizontal angle measured from the projected eye point of at least 20 degrees, and sufficient vertical angle to provide a view of a level road surface extending to the horizon beginning at a point not greater than 200 feet to the rear of the vehicle when the vehicle is occupied by the driver and four passengers or the designed occupant capacity, if less, based on an average occupant weight of 150 pounds. The line of sight may be partially obscured by seated occupants or

by head restraints. The location of the driver's eye reference points shall be those established in Motor Vehicle Safety Standard No. 104 (§ 571.104) or a nominal location appropriate for any 95th percentile male driver.

**S5.1.2. Mounting.** The mirror mounting shall provide a stable support for the mirror, and shall provide for mirror adjustment by tilting in both the horizontal and vertical directions. If the mirror is in the head impact area, the mounting shall deflect, collapse or break away without leaving sharp edges when the reflective surface of the mirror is subjected to a force of 90 pounds in any forward direction that is not more than 45° from the forward longitudinal direction.

#### **S5.2 Outside rearview mirror—driver's side.**

**S5.2.1. Field of view.** Each passenger car shall have an outside mirror of unit magnification. The mirror shall provide the driver a view of a level road surface extending to the horizon from a line, perpendicular to a longitudinal plane tangent to the driver's side of the vehicle at the widest point, extending 8 feet out from the tangent plane 35 feet behind the driver's eyes, with the seat in the rearmost position. The line of sight may be partially obscured by the rear body or fender contours. The location of the driver's eye reference points shall be those established in Motor Vehicle Safety Standard No. 104 (§ 571.104) or a nominal location appropriate for any 95th percentile male driver.

**S5.2.2. Mounting.** The mirror mounting shall provide a stable support for the mirror, and neither the mirror nor the mounting shall protrude farther than the widest part of the vehicle body except to the extent necessary to produce a field of view meeting or exceeding the requirements of S5.2.1. The mirror shall not be obscured by the unwiped portion of the windshield,

and shall be adjustable by tilting in both horizontal and vertical directions from the driver's seated position. The mirror and mounting shall be free of sharp points or edges that could contribute to pedestrian injury.

### **S5.3 Outside rearview mirror passenger's side.**

Each passenger car whose inside rearview mirror does not meet the field of view requirements of S5.1.1 shall have an outside rearview mirror of unit magnification installed on the passenger's side. The mirror mounting shall provide a stable support and be free of sharp points or edges that could contribute to pedestrian injury. The mirror need not be adjustable from the driver's seat but shall be capable of adjustment by tilting in both horizontal and vertical directions.

### **S6 Requirements for multipurpose passenger vehicles, trucks, and buses, other than school buses, with GVWR of 10,000 pounds or less.**

**S6.1** Each multipurpose passenger vehicle, truck and bus, other than a school bus, with a GVWR of 10,000 pounds or less shall have either—

(a) Mirrors that conform to the requirements of S5; or

(b) Outside mirrors of unit magnification, each with not less than 19.5 in<sup>2</sup> of reflective surface, installed with stable supports on both sides of the vehicle, located so as to provide the driver a view to the rear along both sides of the vehicle, and adjustable in both the horizontal and vertical directions to view the rearward scene.

### **S7. Requirements for multipurpose passenger vehicles and trucks with a GVWR of more than 10,000 and less than 25,000 pounds and buses, other than school buses, with a GVWR of more than 10,000 pounds.**

**S7.1.** Each multipurpose passenger vehicle and trucks with a GVWR of more than 10,000 pounds and less than 25,000 pounds and each bus, other than a school bus, with a GVWR of more than 10,000 pounds shall have outside mirrors of unit magnification, each with not less than 50 in<sup>2</sup> of reflective surface, installed with stable supports on both sides of the vehicle. The mirrors shall be located so as to provide the driver a view to the rear along both sides of the vehicle and shall

be adjustable both in the horizontal and vertical directions to view the rearward scene.

### **S8. Requirements for multipurpose passenger vehicles and trucks with a GVWR of 25,000 pounds or more.**

**S8.1** Each multipurpose passenger vehicle and truck with a GVWR of 25,000 pounds or more shall have outside mirrors of unit magnification, each with not less than 50 in<sup>2</sup> of reflective surface, installed with stable supports on both sides of the vehicle. The mirrors shall be located so as to provide the driver a view to the rear along both sides of the vehicle and shall be adjustable both in the horizontal and vertical directions to view the rearward scene.

### **S9. Requirements for school buses.**

**S9.1. Outside rearview mirrors.** Each school bus shall have outside mirrors of unit magnification, each with not less than 50 in<sup>2</sup> of reflective surface, installed with stable supports on both sides of the vehicle. The mirrors shall be located so as to provide the driver a view to the rear along both sides of the vehicle and shall be adjustable both in the horizontal and vertical directions to view the rearward scene.

**S9.2 Outside cross view mirror.** Each school bus, except those which are forward control vehicles, shall have a convex mirror with at least 40 in<sup>2</sup> of reflective surface with an average radius of curvature not less than 12 inches and not greater than 25 inches, installed with a stable support, and mounted so as to provide the driver a view of the front bumper and the area in front of the bus.

### **S10. Requirements for motorcycles.**

**S10.1.** Each motorcycle shall have either a mirror of unit magnification with not less than 12.5 in<sup>2</sup> of reflective surface, or a convex mirror with not less than 10 in<sup>2</sup> of reflective surface and an average radius of curvature not less than 20 inches and not greater than 60 inches, installed with a stable support, and mounted so that the horizontal center of the reflective surface is at least 11 inches outward of the longitudinal centerline of the motorcycle. The mirror shall be adjustable by tilting in both the horizontal and vertical directions.

**S11. Mirror construction.** The average reflectance value of the reflective film employed on any mirror required by this standard, determined in accordance with SAE Recommended Practice J964a, August 1974, shall be at least 35 percent. If a mirror is of the selective position prismatic type, the reflectance value in the night driving position shall be at least 4 percent.

#### **INTERPRETATION**

(1) When a supplemental mirror is furnished in addition to the inside rearview mirror and the driver's side outside rearview mirror, the

supplemental mirror need not be adjustable from the driver's seat.

(2) The location of the driver's eye reference point may be that established in Motor Vehicle Safety Standard No. 104, or it may be a nominal location appropriate for any 95th percentile male driver.

(3) The horizontal angle is measured from the projected eye point, rather than the plane of the mirror.

**32 F.R. 2413  
February 3, 1967**



## **PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO 112**

### **Headlamp Concealment Devices—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, and Motorcycles**

**(Docket No. 1-16)**

A proposal to amend Part 371 by adding Federal motor vehicle safety standard No. 112, Headlamp Concealment Devices—Passenger Cars, Multipurpose Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, and Motorcycles, was published as an advance notice of proposed rule making on October 14, 1967 (32 F.R. 14280) and as a notice of proposed rule making on December 28, 1967 (32 F.R. 20865).

Interested persons have been given the opportunity to participate in the making of this amendment, and careful consideration has been given to all relevant matter presented.

Inadvertent actuation of a headlamp concealment device, due to a defective condition thereby causing headlamps to be blacked out, has compromised the safety of occupants of the vehicle concerned and other highway users. There have been reports of several accidents and incidents caused by such inadvertent blacking out of headlamps. In addition, the Administrator considers headlamp concealment devices present a continuing hazard to motor vehicle safety in that they may inadvertently black out headlamps while headlamps are in use. This standard requires that fully opened headlamp concealment devices must remain fully opened whenever there is a loss of power to or within the device and whenever any malfunction occurs in components that control or conduct power for the operation of a concealment device. These requirements provide a fail-safe operation which serves to prevent further incidents of inadvertent blacking out of headlamps by headlamp concealment devices.

In addition, other safety performance criteria are established. Thus, whenever any malfunction occurs in components that control or conduct power for the actuation of the concealment de-

vice, additional means for fully opening each headlamp concealment device must be provided. A single mechanism must be provided for actuating the headlamp concealment device and illuminating the lights. The installation of each headlamp concealment device must be such that no component of the device, other than components of the headlamp assembly, need be removed when mounting, aiming and adjusting the headlamps. Headlamp beams that illuminate during opening and closing of the headlamp concealment device may not project to the left of or above the position of the beam in the fully opened position. Finally, within the temperature ranges specified, headlamp concealment devices must be fully opened in three seconds after actuation of the appropriate mechanism, except in the event of a power loss. These additional performance criteria meet the needs of motor vehicle safety by increasing the safe and reliable operation of headlamp concealment devices.

Several comments stated that a requirement for fail-safe operation under any combination of unforeseeable circumstances is unreasonable. The requirements expressed in S4.1 are not intended to impose responsibility for failures caused by abuse, poor maintenance practices or other conditions not encompassed by S4.1. Whether or not failure of a headlamp concealment device to remain in an open position once fully opened is a violation of the standard would, of course, depend upon whether the device failed under the conditions encompassed by the standard. Some comments requested that the conditions expressed in S4.1 be made test conditions and one commentator submitted a suggested test procedure to demonstrate compliance. Because of the wide variety of designs and types of

headlamp concealment devices currently in use, no single demonstration procedure is appropriate for all. Consequently, prescription of a standard demonstration procedure is neither practicable nor feasible under the circumstances. The Administrator concludes that the needs of motor safety require that headlamp concealment devices be fail-safe. The Administrator further concludes that the most appropriate method of meeting those needs and of preventing further hazard from obstructed headlamps caused by headlamp concealment device failures is by the prescription of fail-safe operational criteria, as specified in S4.1. Accordingly, the requests are denied.

A number of comments stated that the 3-second operating time requirement and the aiming requirements for rotating headlamps would impose unreasonable burdens in retooling and redesigning if the January 1, 1969, effective date is to be met. Based upon the data presented, the Administrator agrees with these comments. Accordingly, S4.5 and S4.6 are made effective January 1, 1970.

Several comments recommended additional provisions expressly permitting headlamp concealment devices that are automatically actuated by light sensing mechanisms. This standard is not intended to prevent the use of light sensing mechanisms. Consequently, language has been added to clarify this intention if the light sensing mechanism meets the same operational requirements prescribed for switch operated headlamp concealment devices.

Several comments requested inclusion of a provision in S4.3 permitting an additional separate control that actuates only the headlamp concealment device. The Administrator considers permitting this additional control would not be in the best interests of motor vehicle safety. The requests are, therefore, denied.

Other comments suggested that rotating headlamps be required to return to the correctly aimed position after a specified minimum number of opening and closing cycles that power be provided for at least one opening cycle after the vehicle engine has been stopped for a specified length of time; that a warning device be required to indicate to the driver that the concealment devices are malfunctioning; that requirements for aiming and adjusting of headlamps be expanded to insure that vehicle body structure and lamp ornaments will not interfere with these operations; that the standard prohibit designs which permit snow and ice to accumulate over the sealed beam headlamp units; that requirements be included to assure capability for opening concealment devices that are frozen shut; and that a standard be established to prohibit the use of headlamp concealment devices. Although some of these suggestions appear to have merit, they are all beyond the scope of the notice and will, therefore, be considered for future rule making action.

In consideration of the foregoing, § 371.21 of Part 371 of the Federal motor vehicle safety standards is amended by adding Standard No. 112, Headlamp Concealment Devices—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, and Motorcycles . . . effective January 1, 1969.

This rule-making action is taken under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (Public Law 89-563, 15 U.S.C. sections 1392 and 1407) and the delegation of authority of April 24, 1968.

Issued in Washington, D.C., on April 24, 1968.

Lowell K. Bridwell,  
Federal Highway Administrator  
33 F.R. 6469  
April 27, 1968



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD 112****Headlamp Concealment Devices—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses and Motorcycles**

Motor Vehicle Safety Standard No. 112, published in the *Federal Register* on April 27, 1968 (33 F.R. 6469), specifies requirements for headlamp concealment devices for passenger cars, multipurpose passenger vehicle, trucks, buses and motorcycles manufactured after December 31, 1968.

Paragraph S4.1 requires that each fully opened headlamp concealment device remain fully opened whenever either or both of the following occur—

a. Any loss of power to or within the headlamp concealment device;

b. Any disconnection, restriction, short-circuit, circuit time delay, or other similar malfunction in any wiring, tubing, hose, solenoid or other component that controls or conducts power for operating the concealment device.

The purpose of S4.1 is to prevent a malfunctioning headlamp concealment device from inadvertently covering an illuminated headlamp. However, the Administrator has concluded that this paragraph may be construed to prohibit the closing of headlamp concealment devices while the headlamps are not illuminated. Consequently, paragraph S4.1 is being amended to clarify that its requirements apply only while the headlamps are illuminated.

Since this amendment provides clarification and imposes no additional burden on any person, notice and public procedure hereon are unnecessary. It is therefore found, for good cause shown, that an effective date earlier than 180 days after issuance is in the public interest and in the interest of motor vehicle safety.

In consideration of the foregoing, § 371.21 of Part 371, Federal Motor Vehicle Safety Standards, Motor Vehicle Safety Standard No. 112 (33 F.R. 6469), paragraph S4.1 is amended effective January 25, 1969. . .

This amendment is issued under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and pursuant to the delegation of authority from the Secretary of Transportation, Part 1 of the regulations of the Office of the Secretary (49 CFR 1.4(c)).

Issued on January 22, 1969.

John R. Jamieson, Deputy  
Federal Highway Administrator

34 F.R. 1246  
January 25, 1969



## MOTOR VEHICLE SAFETY STANDARD NO. 112

### Headlamp Concealment Devices—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses and Motorcycles

**S1. Scope.** This standard specifies requirements for headlamp concealment devices.

**S2. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks, buses, and motorcycles.

**S3. Definitions.** "Fully opened" means the position of the headlamp concealment device in which the headlamp is in the design open operating position.

"Headlamp concealment device" means a device, with its operating system and components, that provides concealment of the headlamp when it is not in use, including a movable headlamp cover and a headlamp that displaces for concealment purposes.

"Power" means any source of energy that operates the headlamp concealment device.

#### **S4. Requirements.**

**S4.1** While the headlamp is illuminated, its fully opened headlamp concealment device shall remain fully opened whenever either or both of the following occur—

(a) Any loss of power to or within the headlamp concealment device;

(b) Any disconnection, restriction, short-circuit, circuit time delay, or other similar malfunction in any wiring, tubing, hose, solenoid or other component that controls or conducts power for operating the concealment device,

**S4.2** Whenever any malfunction occurs in a component that controls or conducts power for the actuation of the concealment device, each closed headlamp concealment device shall be capable of being fully opened—

(a) By automatic means;

(b) By actuation of a switch, lever or other similar mechanism; or

(c) By other means not requiring the use of any tools. Thereafter, the headlamp concealment device must remain fully opened until intentionally closed.

**S4.3** Except for cases of malfunction covered by S4.2, each headlamp concealment device shall be capable of being fully opened and the headlamps illuminated by actuation of a single switch, lever, or similar mechanism, including a mechanism that is automatically actuated by a change in ambient light conditions.

**S4.4** Each headlamp concealment device shall be installed so that the headlamp may be mounted, aimed, and adjusted without removing any component of the device, other than components of the headlamp assembly.

**S4.5** After December 31, 1969, the headlamp beam of headlamps that illuminate during opening and closing of the headlamp concealment device may not project to the left of or above the position of the beam when the device is fully opened.

**S4.6** Except for cases of malfunction covered by S4.2, after December 31, 1969, each headlamp concealment device shall, within an ambient temperature range of -20 to +120 degrees F., be capable of being fully opened in not more than three seconds after actuation of the mechanism described in S4.3.

34 F.R. 1246

January 25, 1969



**PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO. 113****Hood Latch Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses (Docket No. 1-17)**

A proposal to amend Part 371 by adding Federal motor vehicle safety Standard No. 113, Hood Latch Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses, was published as an advance notice of proposed rule making on October 14, 1967 (32 F.R. 14280), and as a notice of proposed rule making on December 28, 1967 (32 F.R. 20866).

Interested persons have been given the opportunity to participate in the making of this amendment, and careful consideration has been given to all relevant matter presented.

This new standard requires that all motor vehicles to which it is applicable be equipped with a hood latch system. Additionally, in those instances where a vehicle is equipped with a front opening hood, which in any open position partially or completely obstructs a driver's forward view through the windshield, a second latch position on the hood latch system or a second hood latch system must be provided.

Available data reveals that inadvertent hood openings pose a serious hazard to the safe operation of motor vehicles, particularly in the case of front opening hoods. By requiring a hood latch system for all hoods, and under certain circumstances, a second position on that system or an independent second system, this standard will help to reduce incidents of inadvertent hood openings.

All the comments support the need for a hood latch system or hood latch systems, as the case may be. Several commentators requested inclusion of a definition of "hood" and "front opening hood." The Administrator agrees that "hood" should be defined and has defined it as any exterior movable body panel forward of the windshield used to cover an engine, luggage, storage,

or battery compartment. However, the Administration concludes that a definition of "front opening hood" is unnecessary; that phrase is sufficiently definite and is clearly distinguishable from a "side opening" or "rear opening" hood.

Several commentators conditioned their support upon the understanding that the requirement for front opening hoods could be met by a single latch system with two positions, by two separate primary latch systems, or separate primary and secondary latches. Language changes have been made to S4.2 to clarify that all of these types of installations are acceptable.

Several commentators expressed concern over the lack of quantitative performance criteria for hood latch systems. The Administrator finds that additional research and study are necessary before meaningful quantitative performance criteria can be appropriately specified.

In consideration of the foregoing, § 371.21 of Part 371 of the Federal motor vehicle safety standards is amended by adding Standard No. 113, Hood Latch Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses . . . effective January 1, 1969.

This rule making action is taken under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (Public Law 89-563, 15 U.S.C. sections 1392 and 1407), and the delegation of authority of April 24, 1968.

Issued in Washington, D.C., on April 24, 1968.

Lowell K. Bridwell,  
Federal Highway Administrator  
33 F.R. 6470  
April 27, 1968



## **MOTOR VEHICLE SAFETY STANDARD NO. 113**

### **Hood Latch Systems—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses**

**S1. Purpose and scope.** This standard establishes the requirement for providing a hood latch system or hood latch systems.

**S2. Application.** This standard applies to passenger cars, multipurpose passenger vehicles, trucks and buses.

**S3. Definitions.** "Hood" means any exterior movable body panel forward of the windshield that is used to cover an engine, luggage, storage, or battery compartment.

#### **S4. Requirements.**

**S4.1** Each hood must be provided with a hood latch system.

**S4.2** A front opening hood which, in any open position, partially or completely obstructs a driver's forward view through the windshield must be provided with a second latch position on the hood latch system or with a second hood latch system.

**33 F.R. 6471**  
**April 27, 1968**





## PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO. 114

## Theft Protection—Passenger Cars

(Docket No. 1-21)

A proposal to amend § 371.21 of Part 371, Federal Motor Vehicle Safety Standards by adding a new standard, Theft Protection—Passenger Cars, was published in the *Federal Register* on December 28, 1967 (32 F.R. 20866).

Interested persons have been afforded an opportunity to participate in the making of the standard. Their comments and other available information have been carefully considered.

Responses to the notice and other information have demonstrated that stolen cars constitute a major hazard to life and limb on the highways. The evidence shows that cars operated by unauthorized persons are far more likely to cause unreasonable risk of accident, personal injury, and death than those which are driven by authorized individuals. Further, the incidence of theft, and hence the risk of accidents attributable thereto, is increasing. According to a recent study by the Department of Justice there were an estimated 94,000 stolen cars involved in accidents in 1966, and more than 18,000 of these accidents resulted in injury to one or more people. On a proportionate basis, 18.2 percent of the stolen cars became involved in accidents, and 19.6 percent of the stolen-car accidents resulted in personal injury. The same study predicted that automobile thefts in 1967 total about 650,000; about 100,000 of these stolen cars could be expected to become involved in highway accidents. Comparing these figures with statistics for vehicles which are not stolen, the approximate rate for stolen cars would be some 200 times the normal accident rate for other vehicles. Thus, a reduction in the incidence of auto theft would make a substantial contribution to motor vehicle safety. It would not only reduce the number of injuries and deaths among those who steal cars, it would also protect the many inno-

cent members of the public who are killed and injured by stolen cars each year.

The President's Commission on Law Enforcement and Administration of Justice, in its report "The Challenge of Crime in a Free Society," noted the rising cost in lives and dollars as a result of auto theft, highlighted the need for measures to reduce auto thefts and suggested that "The responsibility could well be assigned to the National Highway Safety Agency as part of its program to establish safety standards for automobiles." (pp. 260-261).

The Administrator has concluded that a standard that would reduce the incidence of unauthorized use of cars meets the needs for motor vehicle safety. Consequently, he rejects those comments on the proposed standard which questioned its validity on the ground that it is not related to improving motor vehicle safety. As indicated below, amateur car thieves make up the majority of those unauthorized drivers who become involved in motor vehicle accidents. Many of these thieves make use of keys left in the ignition locks to start the cars they steal. Hence, the standard requires each car to be equipped with a device to remind drivers to remove the key when leaving the car. The number of car thieves who start cars with so-called "master keys" and devices which bypass the lock is also large enough to produce a significant safety hazard. Therefore, the standard also requires devices which tend to defeat this category of thief: A large number of locking-system combinations and a steering or self-mobility lock.

Several comments urged that the warning-device requirement be eliminated from the standard upon the ground that the removal of the key is the driver's responsibility. It was also said that, since any locking system, no matter how

it is constructed, can be defeated by persons possessing sufficient skill, equipment, and tenacity, provisions for ensuring removal of ignition keys would be futile because a thief need not make use of a key.

As the Department of Justice survey mentioned above demonstrates, however, the large majority of car thieves are amateurs, almost half of whom are engaged in so-called "joy-riding." The evidence shows that a high proportion of these thieves, most of whom are juveniles, start the cars' engines simply by using the key which has been left in the ignition lock. It is, of course, the operator's responsibility to remove the key when the car is left unattended and drivers should continue to be exhorted or required to take this elementary precaution. Nevertheless, many do not, and the interest of safety would be promoted by the existence of a visible or audible warning device on the car, reminding the driver when he has neglected his responsibility. This is an instance in which engineering of vehicles is more likely to have an immediate beneficial impact than a long-range process of mass education.

The requirement of a warning when the key is left in the lock was also the subject of several comments which asked that the warning be required when the front-seat passenger's door, as well as the driver's door, is opened. There is considerable validity in the contention that the device should operate upon the opening of either door, particularly because, in some jurisdictions, exiting from a car on the left side is prohibited in certain circumstances. However, the notice of proposed rule making stated that the standard under consideration made the warning-device requirement applicable only when the driver's door is opened. Information available to the Administrator shows that development of such warning devices has concentrated on warnings that are activated only in the event the driver's door is opened while the key remains in the lock. To extend this requirement to the opening of either door might necessitate both the initiation of new rulemaking proceedings and an extension of the standard's effective date. For these reasons, the requirement is, with minor exceptions discussed below, in substance unchanged from the one which appeared in the notice of proposed

rulemaking. Extension of the requirement to passenger-door warning devices will be kept under consideration.

The January 1, 1970, effective date also remains unchanged. Most of the comments which focused on the proposed effective date stated that the standard could be complied with by that date. One manufacturer sought a 1-year extension on the ground that it could not produce a steering or mobility lock in sufficient time to equip its automobiles with such a device by January 1, 1970. Although this comment alleged that data in the possession of its author showed that the cost of purchasing and installing a device to comply with the standard would impose an unreasonable economic burden, neither those data nor the basis for the company's conclusion have been supplied to the Administration. In short, nothing supported the request except the broad generalization that the proposed effective date would cause some undefined hardship. Balancing this unsubstantiated generalization against the increase in deaths and injuries that postponing the effective date for a year would probably cause, the Administrator has concluded that a change in the effective date to January 1, 1971, would not be in the interest of safety, that the January 1, 1970, effective date is a practicable one, and that the request to extend it for 1 year is denied.

Many persons who responded to the notice asked that specific theft protection devices be prescribed. These specific devices included brake locks and so-called "pop-out" keys which automatically eject from the locking system, to devices which purportedly make by-passing the ignition switch impossible. The Administrator concludes that it would be unwise to establish a standard in terms so restrictive as to discourage technological innovation in the field of theft inhibition. Consequently, the standard has been framed to permit as many specific devices as possible to meet its requirements. In addition, the standard does not preclude the use of supplementary theft protection measures, such as the "pop-out" key, so long as automobiles comply with the standard's minimum requirement.

In drafting the standard, a number of revisions were made in the language employed in the notice of proposed rulemaking. Many of

these revisions clarify definitional problems that were raised in responses to the notice. The term "key" is defined so as to include methods of activating the locking system other than the commonly accepted concept of a key. The term "combination" was defined to clarify its meaning, and the 1,000-combinations requirement has been changed to make it clear that, after the standard's effective date, each manufacturer must produce at least 1,000 different locking system combinations, unless he manufactures less than 1,000 passenger cars. In response to comments which pointed out the impossibility of constructing a system which, upon removal of the key, would prevent operation of the powerplant absolutely and in all events, the provisions of paragraph S3(a) of the notice were revised to require only that removal of the key must prevent normal activation of the powerplant. Paragraph S4.2 represents a clarification of the requirement contained in paragraph S3.3 of the notice. It is intended to permit the driver of a car to turn off the engine in emergency situations while the car is in motion without also activating the steering or self-mobility lock. Other minor changes were made for amplification or clarification.

Shortly after the issuance of this standard, the Administrator will issue a notice of proposed rulemaking to determine the practicability of

improving the standard by adding a requirement that key locking systems be designed and constructed to preclude accidental or inadvertent activation of the deterrent required by S4.1(b) while the car is in motion. The notice will propose an effective date for the additional requirement identical to that of the present standard: January 1, 1970.

In consideration of the foregoing, § 371.21 of Part 371, Federal Motor Vehicle Safety Standards, is amended by adding Standard No. 114, . . . , effective January 1, 1970.

In accordance with section 103(c) of the National Traffic and Motor Vehicle Safety Act of 1966, I find that it would be impractical to require compliance with this standard within 1 year and therefore it is in the public interest to adopt a later effective date.

This amendment is made under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority of April 24, 1968.

Issued in Washington, D.C., on April 24, 1968.

Lowell K. Bridwell,  
Federal Highway Administrator

**33 F.R. 6471**  
**April 27, 1968**



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 114

**Theft Protection—Passenger Cars**  
**(Docket No. 1-21)**

The Administrator is amending Motor Vehicle Safety Standard No. 114, Theft Protection—Passenger Cars, for the purpose of making several clarifying changes to it. The standard was issued on April 24, 1968 (33 F.R. 6471) and becomes effective on January 1, 1970. After the standard was issued, the Administrator received a number of requests for interpretations or clarifying amendments. While each of the requests discussed below could have been disposed of by interpretation of the present standard, the Administrator has chosen to change the text of the standard in order to ensure that it is clear on its face.

Paragraph S4.1(b) of the standard, as adopted, requires each passenger car to have a key locking system that, with the key removed, will prevent "either steering or self-mobility of the car or both." Several persons pointed out that a literal interpretation of this provision would require a manufacturer who seeks to comply with the self-mobility requirement to install a system that prevents both forward and rearward self-mobility. In view of the improbability of a successful theft of a car capable only of rearward self-mobility, the Administrator agrees that such a literal interpretation would not be consistent with the general purpose of the standard. Therefore, paragraph S4.1(b) is being clarified by inserting the word "forward" before the word "self-mobility".

Several persons sought clarification of paragraph S4.4, which requires activation of a warning to the driver whenever the key has been left in the locking system and the driver's door is opened. The purpose of this provision is to prevent, as far as possible, drivers from inadvertently leaving the key in the ignition lock when the car is unoccupied. As stated in the preamble to the

standard when it was adopted, "the standard requires each car to be equipped with a device to *remind* drivers to remove the key when leaving the car" (emphasis added).

It was pointed out that a literal reading of the phrase "left in the locking system" (emphasis added) would require activation of the warning regardless of the extent to which the key is inserted in the lock, even if the driver deliberately chooses to withdraw it partially from the lock. These comments argued that it was practically impossible to design a warning system that would function if, for example, the key is so far removed as to be dangling from the locking mechanism. It was the purpose of this provision to require activation of the warning device whenever the key is left in the lock in a position from which the lock can be turned. Once the driver has withdrawn the key beyond the position, he is presumably aware of the location of the key, and no warning need be given to him. Paragraph S4.4 is being amended to clarify this intent.

Paragraph S4.4 is also being amended to avoid the possibility of an interpretation that would prohibit use of a type of locking system and steering lock that has, in the past, been a successful deterrent against theft. In this system, the warning to the driver works in conjunction with the activation of the steering lock device. The steering lock is not activated when the key, after having been withdrawn from the ignition lock, is simply reinserted in the locking system. Nor is the warning to the driver actuated until the key is turned so that the steering lock is deactivated. As noted above, the purpose of paragraph S4.4 is not to guarantee that drivers will remove the key upon leaving the car; rather, it seeks to ensure that drivers do not inadvertently leave their keys in ignition locks. In all but a very small

number of cases, a driver who has withdrawn and then reinserted the key cannot be said to have inadvertently left it in the locking system when he thereafter exits from the car. Therefore, paragraph S4.4 is being amended to make it clear that the warning device need not operate after the key has been removed and reinserted in the locking system without turning the key.

Finally, several persons pointed out that the language of paragraph S4.4 would require activation of the warning device even if the locking system is in the "on" or "start" position. A positive physical act is usually required to bring the system to the "on" position or the "start" position. Moreover, a forgetful driver would not normally leave the key in the "on" position if he opened his door with the intent of leaving the car unattended. In most cases, it is impossible for him to leave the key in the "start" position without physically holding it in that position. Hence, no valid purpose would be served by requiring the warning to be activated when the locking system is in either of those positions, and

the standard is being amended to omit any implication that such a requirement is imposed.

Since these changes are clarifying and interpretive in nature, and since they impose no additional burden on any person, I find that notice and public procedure thereon is unnecessary.

In consideration of the foregoing, section 371.21 of Part 371, Federal Motor Vehicle Safety Standards, Motor Vehicle Safety Standard No. 114 (33 F.R. 6741) is amended, effective January 1, 1970, as set forth below.

(Secs. 103 and 119, National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority at 49 C.F.R. 1.4(c))

Issued on June 9, 1969.

F. C. Turner  
Federal Highway Administrator

June 13, 1969  
34 F.R. 9342

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 114

Theft Protection—Passenger Cars  
(Docket No. 1-21)*Driver-Warning Requirement—Denial of Petition  
for Amendment: Extension of Effective Date*

General Motors Corporation has filed a petition for amendment of paragraph S4.4 of Motor Vehicle Safety Standard No. 114. That paragraph requires each passenger car manufactured after December 31, 1969 to have a warning to a driver who neglects to remove his key from the ignition lock before he leaves the car. As amended (34 F.R. 9342), the standard provides that the warning need not operate "after the key has been manually withdrawn to a position from which it may not be turned."

The basis of the petition is that, in the current-model General Motors system, manufacturing tolerances may be such as to permit a driver to manipulate the ignition key into a position at which the warning buzzer will be deactivated while the ignition lock remains operative. General Motors seeks an amendment to permit the warning to be inoperative "after the key has been manually withdrawn from the normal operating position."

Upon consideration of the petition and other evidence, the Administrator has concluded that it would not be in the public interest to grant the relief General Motors has requested. The purpose of paragraph S4.4 is to make it virtually impossible for a driver inadvertently to leave his key in the ignition lock when he exits and thereby to reduce car thefts along with the high potential for accidental injury and death that stolen cars have. If it were possible for a driver to manipulate the key so as to render the warning inoperative while, at the same time, to continue to operate the vehicle with the key in the lock, the salutary purpose of the warning requirement would be defeated. Therefore, the petition for amendment is denied.

However, the Administrator recognizes that the tolerance problem General Motors has raised is a genuine one. It may be related to the fact that General Motors attempted, in good faith, to manufacture cars that complied with Standard No. 114 well before the standard's effective date. This is a laudable action for which General Motors should not be penalized. Furthermore, the Administrator realizes that the General Motors system is installed not only on its own production but also in passengers car produced by other high-volume manufacturers.

Therefore, the Administrator has concluded that the effective date of paragraph S4.4 of Standard No. 114 should be extended to allow additional time to overcome the tolerance problem. According to the best information available at this time, it appears that a 90-day extension of the January 1, 1970 effective date will provide sufficient time for redesigning and retooling the General Motors system so that it fully conforms to the standard's requirements and to put the new system into production. This conclusion is based on the expectation that the problems involved will be attacked on an urgent, high priority basis, as they should be in view of the safety need that paragraph S4.4 meets. The Administrator may consider a further extension at a later date if additional evidence to justify such an extension is adduced at that time.

Because of the shortness of time before the effective date of Standard No. 114 and because extension of that effective date for compliance with paragraph S4.4 of the standard will impose no additional burden on any person, notice and public procedure hereon are found to be unnecessary and impracticable.

In consideration of the foregoing, the effective date of paragraph S4.4 of Motor Vehicle Safety

**Effective: April 1, 1970**

Standard No. 114, in § 371.21 of Part 371 is extended to April 1, 1970.

(Secs. 103 and 119, National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392, 1407) and the delegation of authority at 49 CFR 1.4(c)).

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Issued on December 3, 1969.

F. C. Turner  
Federal Highway Administrator

**34 F.R. 19547**  
**December 11, 1969**



# **PREAMBLE TO AN AMENDMENT TO FEDERAL MOTOR VEHICLE SAFETY STANDARD NO.114**

## **Theft Protection (Docket No. 1-21; Notice 3)**

**ACTION:** Final rule.

**SUMMARY:** This notice extends the performance requirements of Standard No. 114, Theft Protection, to light trucks and vans. At present, the standard only applies to passenger cars. The effect of the extension will be to reduce the incidence of light truck and van thefts and subsequent disproportionate involvement of those stolen vehicles in injury-producing accidents. The notice also upgrades the performance requirements of the standard to prevent the driver from inadvertently locking up the steering wheel of a moving vehicle by removing the ignition key or shutting off the engine.

**DATES:** The effective date for passenger cars is September 1, 1982. The final rule is effective for multipurpose passenger vehicles and trucks having a gross vehicle weight rating of 10,000 pounds or less on September 1, 1983.

**ADDRESSES:** Petitions for reconsideration should refer to the docket number and be submitted to: Docket Section, Room 5108, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (Docket hours: 8:00 a.m. to 4:00 p.m.).

### **FOR FURTHER INFORMATION CONTACT:**

Nelson Erickson, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-2720)

**SUPPLEMENTARY INFORMATION:** On May 1, 1978, the NHTSA published a notice of proposed rulemaking to extend the applicability of Standard No. 114, Theft Protection (49 CFR 571.114), to trucks with a gross vehicle weight rating (GVWR)

of 10,000 pounds or less and all multipurpose passenger vehicles (43 FR 18577). The standard currently only applies to passenger cars. The proposal would have also upgraded some of the performance requirements of the standard and clarified others.

Consumers, safety organizations, insurance companies, police departments, locksmiths, vehicle manufacturers, and others submitted comments on the proposed standard. The final rule is based on a thorough evaluation of the data obtained in NHTSA research, data and views submitted in the comments and data obtained from other pertinent documents and reports. The most significant comments are discussed below.

### **Extending the Applicability**

In recent years, the sale and use of light trucks and multipurpose passenger vehicles (MPV's), such as passenger vans and on-off road vehicles, has substantially increased. The rise in sales and use has been accompanied by an increase in the number of thefts of those vehicles. To reduce the incidence of light truck and MPV thefts and subsequent disproportionate involvement of those stolen vehicles in injury-producing accidents, the May 1978 notice proposed extending the requirements of Standard No. 114 to light trucks and MPV's. The extension was supported by such organizations as Allstate Insurance Company, American Automobile Association (AAA), Center for Auto Safety (CAS) and Chrysler Corporation. Several other motor vehicle manufacturers and the Motor Vehicle Manufacturers Association did not oppose the extension of the standard, but did object to some of the newly-proposed performance requirements. GM said that while more data were needed to justify the extension, it had voluntarily applied some anti-theft features to some of its light trucks and was

considering using theft protection equipment on all its light trucks and vans. American Motors Corporation (AMC) also argued that a safety need had not been established. AMC and others also requested that if the extension were adopted, then open-body vehicles, such as some on-off road vehicles, should be exempt from the standard.

The agency is adopting the extension as proposed. The data cited by the agency in the May 1978 notice clearly establish that there is a safety need for reducing the number of motor vehicle thefts. That data showed that stolen cars are from 47 to 200 times more likely than non-stolen cars to be involved in accidents. Stolen cars are involved in one out of every 350 accidents and account for approximately 5,600 disabling injuries and 150 fatalities annually. Data available from the States and the Federal Bureau of Investigation indicate that the theft rate for light trucks and MPV's, especially vans, is increasing and is similar to the rate for passenger cars. At present, many light trucks and MPV's use the type of anti-theft devices that were unsuccessfully used on pre-1970 passenger cars, i.e., before adoption of Standard No. 114. Because of the disproportionate association of stolen vehicles with accidents, injuries and fatalities, the agency concludes the number of light truck and MPV thefts should be reduced by requiring those vehicles to have certain minimum anti-theft features currently found on passenger cars.

The agency is not adopting the exemption for open body-type vehicles sought by some manufacturers. This action by the agency will not pose any problems for those manufacturers. The concerns that they expressed about those vehicles' ability to comply with the proposed standard dealt with performance requirements that, as explained below, the agency has decided not to adopt. However, because of the accessibility of these vehicles' interiors, it is important to reduce their vulnerability to theft by requiring them to comply with the rest of the proposed requirements.

The notice proposed to extend the applicability of Standard No. 114 to all MPV's. The agency has decided, however, that the rule should apply only to MPV's whose GVWR is 10,000 pounds or less. NHTSA has decided not to extend the standard to MPV's with a GVWR greater than 10,000

pounds because these vehicles are generally not subject to joyrider theft.

#### **Inadvertent Locking**

To prevent the accidental locking of the steering system while the vehicle is in motion, the May 1978 notice proposed that the steering and the forward mobility of the vehicle not be impeded when the key is removed from the ignition or when the key is moved from one position to another in the steering wheel lock, such as from "on" to "off." The proposed requirements would have allowed the driver to shut off the engine in an emergency situation, such as when the vehicle suddenly accelerated due to a stuck throttle cable, without activating the vehicle's steering lock and losing control of the vehicle's steering or forward mobility. The proposal would have also prevented the steering lock from activating if the driver removed the ignition key from the steering lock while the vehicle was in motion. NHTSA proposed the requirements in response to a petition from R.L. Bean.

Almost all manufacturers supported the intent of the proposal to prevent inadvertent actuation of the steering lock. The manufacturers argued, however, that they currently have steering lock systems that would prevent inadvertent actuation. Many manufacturers have a system which requires the driver to stop the vehicle's forward motion and take a separate physical action in order to turn the key to the "lock" position and engage the steering wheel lock. For example, in vehicles that have a column-mounted transmission shifter and a steering column lock, the shifter must be moved into "park" or "reverse" before the key can be turned to "lock" and the steering lock engaged. The agency agrees that such systems effectively prevent a driver from activating the steering wheel lock while the vehicle is in forward motion.

The agency is concerned about other current systems which allow the driver to activate the steering lock while the vehicle is still in forward motion. For example, some manufacturers use a system which allows a driver to push a key release button or lever and move the key to the "lock" position, which engages the steering lock, while the vehicle is moving forward. The purpose of the key release system is to require the driver to perform a sequence of acts before locking the

steering to reduce the possibility of activating the lock while the vehicle is in motion. However, some of those systems are designed in such a way that the driver can push the key release lever or button, hold it in place and then simultaneously turn the key to the "lock" position with the same hand. Thus, rather than requiring the driver to perform a sequence of separate and distinct acts before the steering wheel lock can be engaged, those systems allow the driver to simultaneously perform the two actions (pushing the key release device and turning the key to the "lock" position) necessary to engage the steering wheel lock.

To prevent the danger of activating the steering lock while the vehicle is in motion, the agency is prohibiting the use of systems which allow drivers to activate the key release device and simultaneously turn the key to the "lock" position with one hand. Manufacturers will still be permitted to use key release devices which are positioned in such a way that two hands must be used to activate the key release and then turn the key (e.g., a system where the key release device is on one side of the steering column and the ignition lock is on the other side) since those systems minimize the possibility of locking the steering while the vehicle is in motion by requiring a distinct sequence of separate acts that must be performed by two hands.

Several commenters, such as Mercedes-Benz and the Japan Automobile Manufacturers Association (JAMA), requested the agency to pattern its requirement on inadvertent activation of locking systems on the Economic Commission for Europe (ECE) regulation. The ECE regulation specifies that anti-theft devices which impede the steering or forward mobility of the vehicle cannot activate until the engine is off and the driver has performed another separate action other than turning the engine off, such as withdrawing the key. The agency has decided not to adopt the ECE regulation. The NHTSA believes that this rule does not effectively minimize the possibility of accidental lock-up, because it does not require the driver to perform a sequence of separate and distinct acts in order to activate the steering wheel lock.

#### **Stronger Ignition Locking System**

Manufacturers, such as GM, Ford, Mercedes and VW, supported a requirement that the

ignition lock be designed to resist removal. However, they criticized the agency's proposal that the ignition system become inoperative if any part of the lock were removed. For example, Ford argued that the proposal would require the ignition to be inoperative even if only a small portion of the lock were removed and the remaining portion of the lock still performed satisfactorily. The manufacturers argued that the agency needs to more specifically define the proposed performance requirements and establish an objective test procedure before issuing a final rule.

Requiring stronger ignition and steering locking systems is potentially one of the most promising ways to effectively reduce vehicle thefts. Even if a thief gains entry to a vehicle, the ignition and steering lock must be circumvented in order to drive the vehicle. Although some manufacturers voluntarily have taken steps to strengthen their ignition locks, it is too easy to remove the ignition lock and start the engine in many vehicles.

To develop an improved ignition lock requirement, NHTSA contracted with the National Bureau of Standards to do tensile, torque and extraction testing on current ignition lock systems (NHTSA Contract HS-9-02150). The report was completed this fall and is presently being evaluated by the agency. Upon completion of this evaluation, NHTSA will consider new rulemaking to propose specific performance requirements for ignition lock retention and ignition system operation.

#### **Audible Warning**

Passenger cars are currently equipped with a warning device to remind the driver to remove the key. The device activates when the key is left in the ignition lock and the car door is opened. The agency's proposal to require an audible warning and to require the warning device to sound for so long as the key is not removed after the door had been opened met with substantial opposition from consumers and vehicle manufacturers. They argued that the proposed sound level required for the warning device would be too loud and therefore irritating to vehicle occupants. MVMA and others also argued that the proposals would require a continual warning in many situations, such as parking lots, services areas and car washes, where keys are legitimately left in the

ignition after the driver has left the vehicle. In addition, they argued that the power necessary to continually operate the warning device could cause battery failure.

Based on its evaluation of the comments, the agency has decided to retain the current warning requirement and not adopt the proposed requirement for a continuous, louder audible warning. The current requirement, which has reduced the incidence of theft due to keys left in the vehicle, will continue to have the beneficial effect of alerting the driver that he or she has left the key in the ignition lock.

#### **Door Locking Systems**

To make it more difficult for a thief to break into a vehicle, the May 1978 notice proposed that the door lock be shielded so that it cannot be released by external manipulative devices. The notice also proposed that the door lock buttons be tapered or of uniform thickness to prevent them from being easily opened by manipulative devices and that keys which operate an exterior lock not be able to operate the ignition lock. Vehicle manufacturers, AAA, locksmiths and others criticized these proposals because of the inconvenience and expense they would pose to drivers who inadvertently locked their keys in their vehicles and needed a locksmith to get into their vehicles. AAA noted that 340,000 out of the 17.2 million emergency road calls it responded to in 1977 involved drivers inadvertently locking their keys in their vehicles, argued that the proposed requirements would prevent legitimate service personnel from entering locked vehicles without breaking the windows or otherwise damaging the vehicle.

The Arthritic Society and some consumers were particularly critical of the proposal to require tapered or uniform size door lock buttons. They argued that such buttons would present problems to drivers and passengers with impaired movement of their fingers.

Some consumers and manufacturers also criticized the agency's two-key proposal, i.e., the one that would prevent a key which operates any exterior vehicle lock from operating the ignition lock. (GM currently uses a two-key system.) The commenters argued that using two keys to enter and start the vehicle would be inconvenient. In addition, manufacturers argued that the require-

ment was design restrictive and might impede the development of other innovative means of locking the door and ignition.

The agency has decided not to adopt these rulemaking proposals. As mentioned previously, using improved ignition/steering locks rather than increasing the amount of time needed to gain entry to the vehicle appears to be the best potential way to reduce vehicle thefts without inconveniencing vehicle users. Further, even in the absence of rulemaking, improvements are anticipated. Manufacturers are currently developing and using new door locking systems to improve vehicle security. The agency will continue to monitor the different door locking systems used by manufacturers to determine if rulemaking is needed.

#### **Interior Hood Release and Shielded Wires**

To delay the theft of a vehicle, the May 1978 notice proposed that the hood release be located inside the vehicle. Delaying access to the engine compartment would potentially make it more difficult to "hot wire" the ignition and start the vehicle. The notice also proposed that the ignition wires within the vehicle's interior be shielded so that it would be difficult to "hot wire" the ignition once the thief got inside the vehicle.

Manufacturers, such as GM and Volkswagen, opposed the interior hood release requirement, arguing that since a thief has to gain access to the interior of the vehicle to steal the car, the thief would then have access to the hood release. JAMA, AMC, Chrysler and other manufacturers objected to the shielding requirement, arguing it would make it more difficult to perform legitimate repair work on the ignition wires.

After re-evaluating these proposals, the agency has decided not to adopt them. As explained previously, the agency plans to concentrate its future rulemaking on the more effective route of improving ignition steering column locks. So long as the steering column lock has not been circumvented, a thief cannot steal a vehicle even if he or she has gained access to the engine compartment or the interior ignition wires to "hot wire" the ignition.

#### **Clarification of Requirements**

In several of the proposed changes to the text of the standard, the May 1978 notice used the

term "ignition system lock" instead of "key locking system" to refer to the system used to activate the engine. Lucas Industries and others pointed out that diesel, turbine and electrical engines do not have electric ignition systems. The agency will continue using the term "key locking system."

Ford recommended that the agency reword the performance requirement that the steering or forward mobility of the vehicle be impaired when the key is removed to make clear that it only applies when the vehicle is not in motion. The agency has adopted Ford's recommendation and has made the necessary clarifying changes to the standard.

#### **Costs and Benefits**

The agency has considered the economic and other impacts of this final rule and determined that this rule is not significant within the meaning of Executive Order 12221 and the Department of Transportation's policies and procedures implementing that order. The agency's assessment of the benefits and economic consequences of this final rule are contained in a final regulatory evaluation, which has been placed in the docket. Copies of that final regulatory evaluation can be obtained by writing NHTSA's docket section at the address given in the beginning of this notice.

As discussed in the evaluation, the agency estimates that the final rule will add \$1.51 to the cost of a passenger car and \$2.06 to the cost of a truck or multipurpose passenger vehicle. The aggregate consumer cost of the final rule is \$3.26 million annually for passenger cars and approximately \$6.57 million annually for trucks and multipurpose passenger vehicles.

NHTSA has received complaints from consumers and businesses about vehicles in which the steering system inadvertently locked while the vehicle was in motion. Accidents occurred in several of these cases. The agency expects that the final rule will prevent such inadvertent lock-up, and thus will prevent the deaths and injuries that can result.

The provisions of the final rule should also deter the joyrider thief who accounts for the majority of accidents involving stolen vehicles. Stolen vehicles are involved in approximately one out of every 350 accidents and account for an estimated 5,600 disabling injuries and 150 fatalities annually. The cost to the public from stolen vehicles is enormous, ranging from \$1.8 billion to \$2.8 billion annually. The agency estimates that the final rule may result in as many as 25 lives saved and 1,120 less injuries annually.

#### **Leadtime Requirements**

The final rule is effective on September 1, 1982, for passenger cars, and on September 1, 1983, for light trucks and vans. The agency believes that a two-year lead time is adequate for passenger car manufacturers because many automobiles already comply with the final rule. Other manufacturers have systems that permit activation of the steering wheel lock by simultaneously performing two actions, and thus these manufacturers need only make minor modifications to bring these systems into compliance. Manufacturers of light trucks and vans are being given three years to comply with the standard because moderate design changes are involved and such manufacturers have generally not voluntarily complied with the rule in the past.

The principal authors of this notice are Nelson Erickson, Office of Vehicle Safety Standards, and Stephen Oesch, Office of Chief Counsel.

Issued on December 22, 1980.

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Joan Claybrook  
Administrator

45 FR 85450  
December 29, 1980



## MOTOR VEHICLE SAFETY STANDARD NO. 114

### Theft Protection—Passenger Cars

(Docket No. 1-21; Notice 5)

**S1. Purpose and scope.** This standard specifies requirements for theft protection to reduce the incidence of accidents resulting from unauthorized use.

**S2. Application.** This standard applies to passenger cars and to multipurpose passenger vehicles, and to trucks having a GVWR of 10,000 pounds or less.

**S3. Definitions.** "Combination" means one of the specifically planned and constructed variations of a locking system which, when properly actuated, permits operation of the locking system.

"Key" includes any other device designed and constructed to provide a method for operating a locking system which is designed and constructed to be operated by that device.

#### **S4. Requirements.**

**S4.1.1.** Passenger cars manufactured before September 1, 1982, shall meet the requirements of S4.2, S4.4, S4.6, and S4.7 or the requirements listed in S4.1.2.

**S4.1.2.** Passenger cars manufactured on or after September 1, 1982, shall meet the requirements of S4.3, S4.5, S4.6, and S4.7.

**S4.1.3.** Trucks and multipurpose passenger vehicles having a GVWR of 10,000 pounds or less manufactured on or after September 1, 1983, shall meet requirements of S4.3, S4.5, S4.6, and S4.7.

**S4.2** Each vehicle shall have a key-locking system that, whenever the key is removed, will prevent—

(a) Normal activation of the vehicle's engine or other main source of motive power; and

(b) Either steering or forward self-mobility of the vehicle, or both.

**S4.3.** Each vehicle shall have a key locking system that, whenever the key is removed while the vehicle is not in motion, will prevent—

(a) Normal activation of the vehicle's engine or other main source of motive power; and

(b) Either steering of forward self-mobility.

**S4.4** The prime means for deactivating the vehicle's engine or other main source of motive power shall not activate the deterrent required by S4.2(b).

**S4.5** Each vehicle shall have a key-locking system that, whenever the vehicle is in forward motion, will impede neither the steering nor the self-mobility of the vehicle, unless—

(a) The engine is deactivated; and

(b) The driver has performed an additional mechanical action that (1) is not a necessary step in deactivating the engine, and (2) cannot be performed simultaneously with the deactivation of the engine by a single hand.

**S4.6** The number of different combinations of the key-locking systems required of each manufacturer for a type of vehicle shall be at least 1,000, or a number equal to the number of vehicles of that type manufactured by such manufacturer, whichever is less.

**S4.7** A warning to the driver shall be activated whenever the key required by S4.2 or S4.3 has been left in the locking system and the driver's door is opened. The warning to the driver need not operate—

(a) After the key has been manually withdrawn to a position from which it may not be turned;

(b) When the key-locking system is in the "on" or "start" position; or

(c) After the key has been inserted in the locking system and before it has been turned.

(Sec. 103, 113, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1407); delegation of authority at 49 CFR 1.50)

Issued on December 22, 1980.

Joan Claybrook,  
*Administrator*

45 F.R. 85450  
December 29, 1980





**PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO. 115****Vehicle Identification Number—Passenger Cars****(Docket No. 1-22)**

A proposal to amend section 371.21 of Part 371, Federal Motor Vehicle Safety Standards, by adding a new standard, Vehicle Identification Number—Passenger Cars, was published in the *Federal Register* on December 28, 1967 (32 F.R. 20886).

Interested persons have been afforded an opportunity to participate in the making of the standard. Their comments and other available information have been carefully considered.

The Administrator has concluded that prevention and deterrence of passenger car thefts would substantially reduce the number and seriousness of motor vehicle accidents. Available evidence shows that cars operated by unauthorized persons are far more likely to cause unreasonable risk of accidents, personal injuries and deaths than those which are driven by, or with the permission of, their owners. The incidence of theft and the risk of accidents attributable thereto is increasing. According to a recent study by the Department of Justice, an estimated 94,000 stolen cars were involved in accidents in 1966, and more than 18,000 of these accidents resulted in injury to one or more people. 18.2 percent of the stolen cars became involved in accidents, and 19.6 percent of the stolen-car accidents caused personal injury. The same study predicted that automobile thefts in 1967 would total about 650,000; about 100,000 of these stolen cars would be expected to become involved in accidents. Comparing these figures with statistics for cars which are not stolen, the approximate accident rate for stolen cars would be some 200 times the rate for other cars. Thus, a reduction in the incidence of auto theft would meet the need for motor vehicle safety. It would not only reduce the number of injuries and deaths among those who steal cars, it would also protect the many inno-

cent members of the public who are killed and injured by stolen cars each year.

In its report, "The Challenge of Crime in a Free Society," the President's Commission on Law Enforcement and Administration of Justice noted the rising cost of auto thefts in lives and dollars, highlighted the need for measures to reduce auto thefts and suggested that "The responsibility could well be assigned to the National Highway Safety Agency as part of its program to establish safety standards for automobiles." (pp. 260-261).

The Administrator has decided that the problem of reducing the incidence of automobile thefts should be attacked on a two-pronged basis. On one hand, physical impediments should be placed in the path of potential thieves; to accomplish this, a Motor Vehicle Safety Standard on Theft Protection—Passenger Cars has been promulgated. That standard prescribes automobile equipment which tends physically to defeat an attempted theft. It is equally important to interpose psychological deterrents to automobile theft. A unique identification number affixed to each car in a uniform location and readable from outside the car would serve as such a deterrent. The present standard requires manufacturers to install such a number in each passenger car. When so installed, it will enable law enforcement agencies to find stolen cars and apprehend car thieves with much greater facility than now exists. By confronting a potential thief with the promise of swift and sure apprehension, compliance with the standard will deter him from making off with someone else's automobile. All law enforcement agencies, as well as many other organizations concerned with the rising incidence of car thefts, that responded to the Notice of Proposed Rule Making endorsed the concept of

a visible identification number embodied in the standard. Many of these groups said that the standard would promote efforts to curb unauthorized use of passenger cars. The Administrator has therefore concluded that issuance of the standard will protect the public against the unreasonable risk of accidents stemming from widespread automobile theft.

The Administrator has carefully considered the contention, which some manufacturers advanced, that the standard might actually increase the risk of automobile theft because a thief, armed with ready access to the car's identification number, might thereby obtain a key for its ignition lock. The acquisition of master or identical keys procured through knowledge of a vehicle's identification number is a lengthy and arduous process. Hence, it is a technique that is rarely, if ever, used by amateur thieves whose activities create the greatest risk of stolen-car accidents. Furthermore, as a practical matter, it is possible to utilize this technique only with respect to a relatively small number of cars. The Theft Protection standard, effective January 1, 1970, will result in a larger number of combinations for ignition locks, and this should substantially reduce the effectiveness of master keys. In addition, improved key-control measures can prevent thieves from acquiring duplicate keys simply by knowing the vehicle identification number. On balance, therefore, the Administrator does not agree with those who argue that the standard will not result in an overall reduction in the number of automobile thefts.

The Administrator also rejects the contention that the standard is unnecessary because of the almost universal requirement that all automobiles must bear at least one license plate. Experience has shown that ordinary license plates, located on the outside of a car and installed with screws, are often removed and replaced with other plates. Knowing only the number of the license plates sold to the owner of the stolen car, the police have no sure way of identifying the car when other plates have been attached to it. The standard attempts to overcome this problem by requiring that the car's identification number be affixed with relative permanency.

In addition to license-plate requirements, the laws of many states contain provisions relating

to identifying numbers on motor vehicles. The primary purpose of these state-law requirements is to facilitate the issuance and transfer of titles to motor vehicles. So far as the Administrator is aware, no state provides for a number which is readable from outside a vehicle without opening a door, hood or other part of the vehicle. These state requirements are neither safety standards, nor do they relate directly to the prevention of motor vehicle thefts or the apprehension of thieves. Consequently, the Administrator has concluded that the standard will have no preemptive effect upon such state laws.

Several changes have been made in the form of the standard as it appeared in the Notice of Proposed Rule Making. A number of comments objected to the requirement, as stated in the Notice, that the vehicle identification number must "provide permanent legibility" on the ground that it was unrealistic and unattainable. In response to these comments, the requirement was deleted. The term "permanent structure" was defined to clarify its meaning, in the light of a number of submissions which indicated that some manufacturers were confused about the parts of the automobile that were included within the meaning of the term.

Some comments questioned the requirement that the number must be affixed in such a manner that "removal, replacement, or alteration of the number will show evidence of tampering." The requirement has been deleted. The standard now provides that the number must either be sunk into or embossed upon each car's permanent structure or upon a separate plate that is permanently affixed to the permanent structure. The term "permanently affixed" is used in section 114 of the National Traffic and Motor Vehicle Safety Act, and it was retained in the standard notwithstanding contentions that it was not sufficiently definitive.

The portion of the Notice pertaining to readability of the number (paragraph S4.4) was amended to include the conditions under which the number must be readable. This provision was also redrafted to make it clear that the number must be readable from a position outside the vehicle without moving any part of the vehicle. This precludes placing the number in a location such that, in order to read it, a door,

trunk lid or other portion of the car's body must be opened.

In consideration of the foregoing, section 371.21 of Part 371, Federal Motor Vehicle Safety Standards, is amended by adding Standard No. 115 . . . effective January 1, 1969.

This amendment is made under the authority of sections 103 and 119 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C.

1392, 1407) and the delegation of authority of April 24, 1968.

Issued in Washington, D.C., on July 3, 1968.

Lowell K. Bridwell,  
Federal Highway Administrator

**33 F.R. 10207**  
**July 17, 1968**



## **PREAMBLE TO MOTOR VEHICLE SAFETY STANDARD NO. 115**

**(Docket No. 1-22; Notice 5)**

This notice amends Standard No. 115, Vehicle Identification Number (VIN), to extend its applicability to additional classes of motor vehicles and to specify its content and format. The action was undertaken because of the increased use of vehicle identification numbers by the safety community, and is intended to extend and simplify VIN use.

Effective date: January 1, 1980, for passenger cars; September 1, 1980, for other vehicles.

For further information contact:

Mr. Nelson Erickson, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 100 Seventh Street, S.W., Washington, D.C. 20590 (202 426-0854).

Supplementary information:

On January 16, 1978, the National Highway Traffic Safety Administration (NHTSA) published a notice of proposed rulemaking (43 F.R. 2189) which proposed extending the applicability of Federal Motor Vehicle Safety Standard No. 115 dealing with vehicle identification numbers (49 CFR 571.115) to additional classes of vehicles and specifying VIN format and content for specific classes of vehicles.

The uses and users of the vehicle identification number were discussed in detail in the previous notice. In summary, the VIN is used as the key identifier of a vehicle by motor vehicle administrators, manufacturers, insurance companies, law enforcement agencies, and the NHTSA, and is the cornerstone of the safety defect recall program. Also discussed in the previous notice were the long-standing efforts by several groups in the United States and abroad to standardize the VIN format and content and the two major and incompatible VIN systems previously proposed by the International Standards Organization and the Vehicle Equipment Safety Commission.

The system developed by the International Standards Organization (ISO), with the participation of United States representatives from industry and government, consists of 17 characters and is flexible in terms of content. A second system developed by the Vehicle Equipment Safety Commission (VESC), working in conjunction with the American Association of Motor Vehicle Administrators (AAMVA), consists of 16 characters whose characteristics are rigidly defined. While the Motor Vehicle Manufacturers Association (MVMA) attempted to establish a compromise position between the ISO and VESC-AAMVA systems by letter to Commissioner C. B. Craig of California (a copy of which was submitted to the docket), neither party appears to have been persuaded to alter their system and both continue to urge that the jurisdictions they serve and the NHTSA adopt their system.

By issuing a proposal which the NHTSA believed was a first step in establishing a better-engineered, more flexible system serving all users to the greatest degree possible, the agency hoped to elicit comments which would aid it in this endeavor. While some comments merely recited their belief that either the ISO or the VESC-AAMVA system should be adopted in toto, most were helpful in their analysis of the NHTSA proposal. All comments were carefully considered.

The NHTSA concludes it should not change its previous position that neither the ISO nor the VESC-AAMVA systems are sufficient to satisfy the broadest group of potential users of the VIN in the most efficient fashion. In the case of the ISO system, the legitimate needs of the motor vehicle administrators for descriptive information concerning the vehicle identified were not met. It should be pointed out the ISO system was never meant to serve this need, but merely to

identify the vehicle. The VESC-AAMVA systems, on the other hand, while admirably suited to the needs of the States did not take into account fully the needs of the manufacturers and of NHTSA. The most significant comments concerning the NHTSA proposal are discussed below.

### *Preemption*

A threshold question discussed in the notice of proposed rulemaking (NPRM), but raised again by the comments, related to the preemptive effect of the NHTSA standard on non-identical State standards relating to the same aspect of performance (see § 103(d) of the National Highway Traffic and Motor Vehicle Safety Act, 15 U.S.C. 1392(d)). This issue was most comprehensively discussed by the Maryland Department of Transportation, which raised two basic points.

First, Maryland called the attention of the agency to the preamble of the notice, which originally established Federal Motor Vehicle Safety Standard No. 115 (33 F.R. 10207). As originally established in 1968, the standard did not specify requirements regarding either the content or the format of the VIN. In that notice, the Administrator stated that State laws relating to identifying numbers used for titling purposes did not conflict with the standard as then drafted and therefore were not preempted.

The question, however, is not whether Standard No. 115 as originally issued 10 years ago preempted State standards, but whether the expanded standard regarding VIN format and content being promulgated today preempts the States in regulating this aspect of the VIN. As stated in the Advance Notice of Proposed Rulemaking (41 F.R. 38189) and the NPRM, and as reiterated here, it is the agency's view that Standard No. 115 as promulgated by this notice fully occupies the area of VIN format and content and preempts State and local requirements relating to the same matter.

The second legal argument raised by Maryland is that by establishing the format and content of the VIN, the NHTSA is "unabashedly violating fundamental constitutional principles of federalism." The gist of Maryland's argument, as we understand it, is that establishing the content and

format of the VIN makes it necessary for the States to purchase computers and record keeping equipment and thereby makes them "quasi-departments and instrumentalities" of the NHTSA. In support of their position, they cite *National League of Cities v. Usery*, 426 U.S. 833, 96 S.Ct. 2465, 49 L. Ed. 2d, 245 (1976).

The NHTSA finds no merit in this argument. *National League of Cities v. Usery* concerned the direct imposition of Federal minimum wage standards by Congress on the States with an additional cost of millions of dollars in State employee salaries and an effect which curtailed the ability of the States to carry on a number of their essential functions. The result of the implementation of Standard No. 115 has no greater effect on the States than do any of the other Federal safety standards which prescribe minimum performance standards for and affect the cost of vehicles which the States purchase. Further, there is no indication in the docket that the VIN format and content established by this notice, as compared to that contained in the VESC-AAMVA system, will have a substantial effect on the States or, as put in *Ergy v. United States*, 421 U.S. 542, 95 S.Ct. 1792, 44 L. Ed. 2d 363 (1975), impair their "ability to function effectively in a federal system."

A final argument relating to the preemption issue which was raised in some comments is that the NHTSA has failed to consult with the VESC, as required by § 103(f)(2) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1392(f)(2)) and therefore the issuance of a revised Standard No. 115 is invalid. The plain words of the statute and the legislative history of the Act show clearly that the process contemplated was advising the VESC of NHTSA proposals by issuing them and receiving the VESC comments. In this instance, comments were received from the VESC and carefully considered.

### *International Harmonization*

An important issue raised by most foreign manufacturers, the U.S. Department of Commerce, and the President's Special Representative for Trade Negotiations, Ambassador Robert S. Strauss, was the incompatibility of the NHTSA proposal with the international standard adopted

by the International Standards Organization and, subsequently, by the European Economic Community. This issue was raised not only in relation to the goal of international harmonization of national standards, but also to the need to avoid the creation of unnecessary international obstacles to trade. In this regard, Mr. Strauss noted that a proposed Code of Conduct on Preventing Technical Barriers to Trade was under negotiation in the multilateral trade negotiations. This code would encourage adherents to use relevant international standards as the basis for national standards, except where their use would be inappropriate.

The NHTSA, as a rule, establishes its motor vehicle safety standards outside the channels of multilateral negotiations. NHTSA does recognize, however, the desirability and importance of fostering international cooperation wherever feasible and unfailingly regulates all manufacturers, be they domestic or foreign, in the same equitable fashion. Indeed, it was in this spirit that the NHTSA participated in the meetings which led to the creation of a number of ISO standards and proposals, including the one for the ISO VIN system.

However, through comments received during the rulemaking process, the NHTSA has become aware of the significantly greater potential of the VIN than is realized under the ISO system, both in terms of the amount of information which it can contain and its utility to various users. The efforts of the parties creating the VESC-AAMVA system and the ISO system, as well as their frank and forthright comments concerning the NHTSA proposals, have established clearly the parameters of VIN usefulness and the needs of the users.

Consequently, in developing a VIN format and content which allows it to be used in the most efficient fashion—a goal which all parties agree to—the agency believes it is establishing a VIN system whose merit can and will be recognized by all. Of key importance to the agency in this belief are two facts. First, the VIN format as adopted by the ISO. Further, it is in almost all ways compatible with the VESC-AAMVA system.

The first section of the NHTSA VIN which serves as a maker identifier is fully compatible with the systems proposed by the VESC-AAMVA and the ISO. Likewise the third section of the NHTSA VIN which serves as a vehicle indicator is fully compatible with the systems proposed by the VESC-AAMVA and the ISO. The second section of the NHTSA VIN, which serves as a vehicle description, is somewhat different in structure than that contained in the other two systems. However, it meets the informational needs of the VESC-AAMVA, while allowing the manufacturers the flexibility afforded by the ISO system coupled with the format which the ISO adopted.

Secondly, the ISO system, while adopted in Europe, has yet to be implemented by the manufacturers. The NHTSA sincerely hopes that the ISO, after considering the slight variations to its systems adopted by the agency, will modify its system to make it consistent with the NHTSA rule. In this way, international harmonization can be assured.

#### *Information Coding and Retrieval Techniques*

A short discussion of information coding and retrieval techniques will be helpful in understanding the VIN standard.

Information may be directly obtained from a series of alpha and numeric characters. For example, "FORD" indicates the name of an automobile manufacturer without further translation. The same manufacturer may also be represented by a single character, such as "F," but that character must be deciphered to determine whether it represents Ford, Fiat, or some other manufacturer. This process is called coding and decoding.

To decode a character, a "table look up" process is used. The dictionary may be either a reference document or a computer. In both instances, the character "F" will be assigned a meaning in the table, such as "F" means Ford, and looking up either "F" or Ford will allow its meaning to be determined.

The character "F" may represent more than one piece of information, however, even though it is a single character. It can represent the name of a manufacturer, e.g., Ford, the model of

a vehicle produced by Ford, e.g., Pinto, and any other characteristics which the vehicle coded "F" has. This process is similar to a social security number which can be used as a key to a considerable amount of information about the individual to whom that number is assigned.

As a practical matter, this means that a manufacturer can encode more than five pieces of information in a five-character code word. For example, if all 1980 Chevrolet Chevelle, Malibu, Estate Station Wagons were in the same weight class and contained the same restraint system, there would be no need to directly encode this information.

If a one-character alpha-numeric coding system is used, there can only be 35 different unique codes (A-Z, 1-9). For example, if the social security number consisted of only one character, only 35 individuals could be identified. Therefore, to increase the number of possible codes, more than one-character is used. If two-characters are used, there are 1225 possible codes; if three-characters are used, there are 42,875 possible codes; if four-characters are used, there are 1,500,625 possible codes; and if five-characters are used, there are 52,521,875 possible codes. The number of possible code increases exponentially as the number of characters within the code increases.

#### *Purpose and Scope*

Several comments to the docket questioned whether the standard would be helpful in simplifying vehicle certification. While the presence of a VIN on the certification label uniquely identifies the vehicle being certified and avoids the need for considerable additional identifying information concerning that vehicle, it is a secondary purpose and has therefore been eliminated as a rationale for promulgation of the standard from the Purpose and Scope section.

#### *Application*

The Truck Trailer Manufacturers Association and a number of individual trailer manufacturers strongly opposed the inclusion of truck trailers within the requirements of Standard No. 115. In support of their position, they pointed to the small size of many trailer manufacturers and their lack of access to sophisticated computer

equipment. They also pointed to the lack of data relating to a serious safety problem involving trailer theft. Finally, they pointed to the overall government desire to reduce the regulatory burden on businesses.

The NHTSA considered carefully the issues raised by the trailer manufacturers. It concluded that the need for a unified VIN system outweighed the argument of these manufacturers. If States and other users, as well as recall campaigns, are going to establish computer capacity based on a 16-character plus check digit VIN system, allowing a different system will create substantial confusion and perhaps the loss of trailer VINs within the data base because of their aberrant format. Further, the use of a standardized VIN format will allow for the effective tracing of trailers for accident investigation purposes and the use of hidden partial VINs as a law enforcement tool.

In order to deal with the real problems facing the small manufacturer, however, much of the data proposed to be required of the trailer manufacturers has been eliminated. To the extent a limited number of models are produced, the necessary information can be simply represented. The first three characters would represent the maker identifier. The next five characters indicate the model in whatever fashion the manufacturer chooses. Thus, four of these characters could be standardized and only the fifth would be variable if only a limited number of models are made. The derivation of the next character, the check digit, is easily dealt with by the use of an inexpensive, hand-held calculator. The representation of the plant and model year could also be standardized. The determination of the trailer's production sequence, particularly with a small annual output, should not be difficult. The information which is unique to a vehicle can be added to its VIN when the certification label is prepared.

A definition of "manufacturer" has been added to make clear that the final stage manufacturer is responsible for assigning and affixing the VIN.

Based on the suggestion of the Motor Vehicle Manufacturers Association, the term "type" has been substituted for the term "class," but the definition remains the same.



The definition of "model year" is altered to limit the actual period of a model year to just under two calendar years. The NHTSA concludes this will deal with the problem of multi-year model years raised by the AAMVA comment.

### *Requirements*

Several of the commenters expressed the view that affixing a tamperproof label which could not be removed intact was a better method of displaying the VIN than stamping it on a separate plate which was affixed to the vehicle. The language of S4.3 is amended to indicate this is permissible. Volvo commented that the phrase "sunk into or embossed" was technically limiting, and the language is therefore broadened to read "appear clearly and indelibly." The agency also wishes to call to the attention of the manufacturers selecting the option providing for a separate plate that whether or not a plate is "permanently affixed" is a matter which the agency intends to examine carefully.

### *Legibility Requirements*

Many manufacturers commented unfavorably on the comprehensive legibility and positioning requirements of the VIN, stating they were design restrictive and unnecessary. In support of their position, they also pointed to increased retooling expenses and an increase in the size of the VIN plate if the requirements were adopted.

Consequently, the NHTSA concludes that it will limit its legibility requirements to the minimum necessary to ensure an accurate reading of the VIN. These specify a minimum character height of 4 mm and that only capital, sans serif characters appearing on a contrasting background shall be used. If future data indicates these requirements are not sufficient, they will be strengthened. S4.3.1 and S4.5 are therefore substantially amended and S4.4.1 is deleted.

### *Section I—MAKER IDENTIFIER*

The use of the first three characters of the VIN to uniquely identify the manufacturer, make and type (previously designated "class") of the motor vehicle if the manufacturer produces 500 or more

vehicles of its class annually is retained as proposed. The use of the first three characters of the VIN and the first three characters of the segment of the VIN which indicates the production sequence of the vehicle to identify manufacturers of less than 500 vehicles in a class annually is also retained.

The AAMVA comment in relation to the maker identifier requirement was that motor vehicle administrators register vehicles by make, never by manufacturer. Consequently, the requirement was said to be "totally redundant." Foreign manufacturers, on the other hand, point out that a make classification is essentially a United States phenomenon, and is therefore not important. However, under the NHTSA proposal neither manufacturer nor make is directly represented in the identifier. If State motor vehicle administrators are concerned only with a vehicle make, they need only program their data processing equipment to derive the make from the three-character identifier code. If foreign manufacturers do not utilize the make designation, then they need only advise the NHTSA of this fact when they submit information to the agency relating to the meaning of their identifier.

The Society of Automotive Engineers (SAE) pointed out its work in the area of manufacturer identification and volunteered to be the repository and assignor of maker identifiers. The NHTSA must accept, of course, the ultimate responsibility concerning maker identifiers. The standard provides, however, that an agent of a manufacturer can submit the maker identifier. The NHTSA would welcome the SAE carrying out these responsibilities as the agent of manufacturers, thus avoiding the potential confusion and initial duplication forecasted by many comments.

### *Section II—VEHICLE ATTRIBUTES*

Section II of the VIN, relating to vehicle attributes, caused the most confusion among those commenting. The AAMVA and VESC strongly opposed the NHTSA vehicle attributes section proposal, although the differences between the VESC/AAMVA system and the NHTSA system were minimal.

Under the VESC system, there would be five characters in the vehicle attribute section. The first four characters would be a "code word" from which a vehicle's line, series, and body type could be deciphered and the fifth would be a second "code word" decipherable into the engine type. Under the NHTSA proposal, the vehicle attribute section would have consisted of six characters representing a "code word" from which the information required by the VESC as well as additional information the NHTSA believed was important could be deciphered. Thus, the difference between the VESC and NHTSA resolved itself into the amount of information contained and the use of two code words versus one code word.

While many commenters recommended the use of the VESC system because of its fixed-length, fixed-field format, in the second section, both systems were of a fixed length and, except for a specific position to represent engine type, both had the same degree of a fixed field.

After a review of the comments, the NHTSA has determined that all of the information proposed to be required is not necessary at this time as discussed below. Consequently, only five characters are needed in the vehicle attributes section to allow for an adequate number of code words to represent the required information. Because of this change the designation of the plant of manufacture has been moved to the third section as is discussed below. Further, the sixth character of this section has been replaced by the check digit as is also discussed below.

It would be useful at this time to review the NHTSA requirements for the vehicle attribute section promulgated in this notice as compared with the VESC-AAMVA and ISO systems.

A typical NHTSA vehicle attribute section for a passenger car would appear as follows: RX6302

The first five characters would be a code word from which is deciphered the line, series, body type, engine type, weight class, and restraint type. The sixth character would be the check digit. It should be noted that the check digit need not be stored in a computer memory bank, as it can be regenerated during printout.

A typical VESC-AAMVA vehicle attribute section for a passenger car would appear as follows: RX63D

The first four characters would be a code word from which is deciphered the line, series and body type. The fifth character would be a code word decipherable into the engine type.

A typical ISO vehicle attribute section for a passenger car would appear as follows: RX63D2

All six characters would be decipherable into a series of discretionary vehicle attributes.

### *Informational Requirements*

Many commenters indicated that they believed much of the information required by the agency to be decipherable from the vehicle attribute section was not necessary. After a review of the comments, the NHTSA has determined to require for passenger cars only that information required by the VESC-AAMVA system and information relating to weight class and occupant restraint type. Information requirements for the other type of vehicles are also reduced.

Several comments pointed out that only the final stage manufacturer would be able to assign the VIN as the vehicle's characteristics would not be known until that time. The comments also pointed out this raised a problem when a defect campaign was required of a first and second stage manufacturer. To ease this problem, the NHTSA has concluded that the identity of any previous manufacturers should be decipherable from the vehicle attribute section. This procedure has been developed by the Society of Automotive Engineers for their recommended practice for motor home vehicle identification numbers. The agency also assumes that manufacturers will keep sufficient records pursuant to their responsibilities under the National Traffic and Motor Vehicle Safety Act to trace incomplete vehicles sold to final stage manufacturers.

Because of the flexibility afforded by the five-character vehicle attribute section, further information could be required in the future without any change in the VIN format as established by this rule.

### *Section III—VEHICLE IDENTIFIER*

#### *Model Year*

The NPRM proposed that either a vehicle's model year or the calendar year of manufacture be encoded in the first character of the vehicle identifier section. Many comments suggested this would be confusing, and that only model year should be encoded as this is the most representative category. The NHTSA concurs in this view, and S4.5.3.1 is amended accordingly. While one comment suggested including a direct two-digit code representing the last two numbers of the year, the NHTSA concludes that there is not sufficient space in the VIN to include two characters as a year identifier.

#### *Plant of Manufacture*

Numerous comments were made relating to what was perceived as optional identification of the plant of manufacture in the NHTSA proposal. As the proposal stated, however, the plant of manufacture was required to be identifiable either directly from the last character of the vehicle attribute section or indirectly from the entire VIN. At no time was the inclusion of the plant of manufacture made optional.

After reviewing the comments to the docket from the manufacturers, however, the NHTSA has concluded that the added flexibility of allowing the plant to be derived from the entire VIN rather than a specific character is not necessary, and that the more traditional approach as embodied in the VESC-AAMVA and the ISO systems should be established. Consequently, plant of manufacture is not required to be designated in the second character of the third section (vehicle attribute section).

#### *Production Sequence Number*

The NPRM proposed that the last six characters represent the sequential number of a vehicle when the manufacturer produced more than 500 vehicles annually of that type. The Truck Trailer Manufacturers Association stated that some of their members might desire to keep secret for competitive purposes the number of vehicles they produce annually. Since a manufacturer may begin his sequence at any number, however,

so long as the order thereafter is maintained in sequence, the actual number of vehicles produced can be kept secret.

A number of comments pointed out that for various reasons a vehicle might be taken from a production line, thereby having an actual sequential number which differs from the production sequence number originally assigned by the manufacturer. The proposal is amended to indicate that the production sequence number is required. Other comments questioned how the system could deal with manufacturers who produced less than 500 vehicles in a class one year and more than 500 in the next. It should be noted that occasional overruns can be accommodated up to a total of 999 vehicles annually without the assignment of a different manufacturer identifier.

#### *Check Digit*

The requirement for a check digit is retained as proposed, but the check digit itself is repositioned within the VIN. Many commenters stated that the system proposed by the VESC-AAMVA, utilizing a computer "edit routine" as well, designating many characters as either alpha or numeric, would be more efficient in reducing errors.

Both the check digit and the edit routine procedures are designed to reduce errors. The edit routine process analyzes the VIN in two areas. First, it considers the basic format utilized by a manufacturer, thereby discovering format errors. Secondly, it considers whether characters which should be either alpha or numeric meet these requirements. Thus, the edit routine can pinpoint with some accuracy where certain errors occur in a VIN.

The check digit routine, however, is able to discover errors missed by the edit routine process, such as mistaken characters of the same type (alpha or numeric). The check digit when used in conjunction with an edit routine can find a greater proportion of errors than can be found using the basic edit routine proposed by some commenters. Further, the check digit, unlike the edit routine which needs substantial data processing capability to be utilized, can be utilized by policemen or clerks equipped with an inexpensive hand-held calculator.

As a practical matter, the NHTSA expects that many users of VINs will utilize a combination of the two routines to minimize VIN error. Thus, the format of a VIN will be checked against that expected for a particular manufacturer and the check digit will be utilized to ensure that VINs which are properly formatted also contain the proper alpha and numeric characters.

Given the fact that both approaches would reduce the error rate, the NHTSA concluded that it would utilize the check digit since its use did not limit the flexibility of the system. The fixed format proposed by VESC-AAMVA did provide information they sought. However, other users of the VIN, notably the manufacturers and the research community, were not provided the flexibility to make use of the potential capacity in the VIN to provide additional information.

Several of the commenters, particularly those from the insurance industry, raised the questions of whether the check digit would be utilized by all users and the inability to determine the correctness of the VIN if the check digit was not used. While the authority of the NHTSA extends only to motor vehicle manufacturers, the agency fully expects all users interested in maintaining the integrity of their records to utilize the VIN with the check digit.

Some commenters also stated their fear that when the VIN was reported from the field, some observers might neglect to include the check digit. Consequently, the check digit has been repositioned from the end of the VIN to the end of the second section to make it an integral part of the VIN.

Several commenters questioned the need for the check digit, pointing to the experience of the State of North Carolina in reducing its VIN transcription error rate to less than 1 per cent without the benefit of either a check digit or alpha numeric designation requirements. The

NHTSA would seriously consider any petitions for reconsideration which clearly demonstrate that neither a check digit nor alpha/numeric designation requirements is necessary to substantially reduce error in transcribing the VIN.

#### Reporting Requirements

Some commenters questioned the NHTSA proposal in that it allows manufacturers to display information in a unique format and to change that format within 60 days notice to NHTSA. They felt this would create confusion and the added expense of continual reprogramming.

However, it should be noted that the VESC-AAMVA system also allows manufacturers that same right, i.e., the right to change the code which represents various informational elements, but makes no provision for advance warning. Indeed, the VESC-AAMVA system is silent as to how the users of the VIN will be informed of the meaning of the characters adopted by manufacturers. Consequently, no change is made to the reporting requirements as proposed by the agency. It should be noted that the NHTSA does not anticipate that manufacturers will have any need to change codes within model years.

The principal authors of this notice are Nelson Erickson of the Office of Vehicle Safety Standards, Crash Avoidance Division, and Frederic Schwartz, Jr., of the Office of Chief Counsel.

In consideration of the foregoing, Standard No. 115, 49 CFR 571.115 is amended. . . .

(Sec. 103, 112, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1407); delegation of authority at 49 CFR 1.50.)

Issued on August 11, 1978.

Joan Claybrook  
Administrator  
**43 F.R. 36448-36452**  
**August 17, 1978**

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 115

### Vehicle Identification Number

(Docket No. 1-22; Notice 8)

*Action:* Final rule and response to petitions for reconsideration.

*Summary:* This notice amends Federal Motor Vehicle Safety Standard No. 115, *Vehicle identification number*. It establishes a fixed format for vehicle identification numbers (VINs) assigned to passenger cars, multipurpose passenger vehicles with a gross vehicle weight rating of 10,000 pounds or less and trucks with a gross vehicle weight rating of 10,000 pounds or less. This amendment is made to meet the needs of State motor vehicle administrators, insurance companies and other users who desire a means of discovering certain types of transcription errors in VINs at the earliest possible stage. To facilitate manufacturer compliance with this amendment, the requirement that gross vehicle weight rating (GVWR) be decipherable from the VIN of passenger cars is deleted.

The notice also positions the check digit, a means for detecting errors in the VIN, immediately following the eighth character of the VIN. This amendment is made to facilitate manufacturers encoding the VIN.

The date of September 1, 1980, for compliance with the standard is retained but specific authorization of an earlier optional compliance date is deleted.

The requirement that the three sections of the VIN be separated by spaces is also deleted in the interest of lessening the cost burden to manufacturers and promoting international harmonization. The requirement that VIN characters have a minimum height of 4 mm is limited to the VIN displayed in the vehicle passenger compartment, as only that VIN needs to be read from a distance.

In response to petitions, the responsibility of assigning the VIN to motor homes is shifted from the final stage manufacturer to the incomplete vehicle manufacturer.

The standard is also amended to simplify GVWR encodement requirements for vehicles. Petitions to delete the requirement that engine type and net brake horsepower be encoded in the VIN of certain vehicles are denied, but petitions are granted to delete engine make and model from the information required for vehicles with a GVWR of over 10,000 pounds.

*Effective date:* September 1, 1980.

*For further information contact:*

Frederic Schwartz, Jr., Office of the Chief Counsel, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-1834).

*Supplementary information:*

On November 9, 1978, the National Highway Traffic Safety Administration published in the Federal Register two notices relating to Federal Motor Vehicle Safety Standard No. 115, Vehicle identification number (49 CFR 571.115). These notices, which were issued in response to petitions for reconsideration, amended the standard (43 FR 52246) and proposed additional amendments to the standard (43 FR 52268). Several petitions for reconsideration of the amended standard were received, as were a number of comments concerning the proposal.

The establishment of an acceptable VIN standard has been a long and arduous process. As was pointed out in the advance notice of proposed rulemaking published in the Federal Register on September 9, 1976 (41 FR 38189), NHTSA activity in this area was preceded by the development

of a number of competing, incompatible VIN schemes. The two major VIN schemes were that of the Vehicle Equipment Safety Commission (VESC) (supported by the American Association of Motor Vehicle Administrators and the States) and that of the International Standards Organization (ISO) (supported by the European Economic Community and most domestic and foreign vehicle manufacturers). These schemes were the ones on which the NHTSA focused as a starting point in its effort to establish a standard that would meet the need for motor vehicle safety and serve the needs of all VIN users. As the rulemaking progressed (43 FR 2189, 43 FR 36448, 43 FR 52246, 43 FR 52268), both the ISO and VESC schemes came closer together. However, both schemes remain incompatible in a number of respects.

The uses and users of the VIN have been discussed in detail in previous notices. In summary, the VIN is used as the key vehicle identifier by motor vehicle administrators, manufacturers, insurance companies, law enforcement agencies, and the NHTSA. It is the cornerstone of the safety defect and standard noncompliance recall program, and an important element in manufacturer quality control and in vehicle theft recovery. Its use as an information tool in the analysis of accident reports is of great importance to safety research and rulemaking.

The NHTSA standard adopts the most efficient and effective aspects of both the VESC and ISO standards, while broadening those standards' information function to include matters of specific importance to this agency's safety responsibility. Further, the NHTSA standard includes features which result in more data storage accuracy than is possible under the VESC standard, while remaining harmonious with the ISO scheme now adopted by the European Economic Community.

### Engine Type Information

Several manufacturers petitioned to remove the requirement that engine net brake horsepower be decipherable from the second section of the VIN. The basis for this request was that the definition of "Engine Type" includes net brake horsepower among the characteristics to be considered in differentiating one engine type from another.

These petitions are denied. While net brake horsepower is among the characteristics to be considered in establishing an engine type, there is no requirement that it be encoded in the engine type code. In some instances, such as with heavy truck engines, encodement would not be practicable. However, if net brake horsepower is actually decipherable from the engine type, then the requirement that it be decipherable from the second section of the VIN is met and it need not be encoded a second time.

Several petitioners requested a clarification of the meaning of "make and model" in relation to engine type and a definition of "net brake horsepower." International Harvester (IH) also petitioned to eliminate engine make and model information encoding requirements for trucks since they utilize more makes and models than can be represented by one position in the VIN. Further, IH stated that in its view this information has no safety relationship.

To clarify the requirements for "make and model" information, the phrase "manufacturer and make" is substituted in the definition of engine type. The term "manufacturer" has its current meaning within Part 571, and the term "make" as defined in S3 is expanded to include engines. Thus, engine "make" is defined as the name which the manufacturer applies to a group of engines (e.g., General Motors Oldsmobile engine).

The specific reference to engine make and model was added to the definition of engine type at the request of the States. They were concerned primarily about the problem of engine switching between the divisions of passenger car manufacturers. The NHTSA is also concerned that this information be available to ensure the accuracy of its safety and fuel efficiency research, since the performance of two different engines classified as the same "type" may differ. The NHTSA concludes it can resolve these concerns while not placing an unnecessary burden on truck and other heavy duty vehicle manufacturers where engines are used interchangeably. Therefore, the requirement that engine make and model be reflected in the VIN is amended to require only that engine manufacturer and make be reflected for passenger cars, multipurpose passenger vehicles with a

GVWR of 10,000 pounds or less, and trucks with a GVWR of 10,000 pounds or less. It is in these categories of vehicles that engine types are standardized and consumers are less knowledgeable about the specifications of the vehicles they purchase.

Harley-Davidson Motor Co., Inc. also asked the agency to define the term "net brake horsepower" and to indicate whether SAE Standard J245 was the intended meaning. Because several definitions of net brake horsepower exist, the agency has concluded not to specify the precise definition to be used, thereby allowing manufacturers to continue using their current method of evaluating the net brake horsepower of their vehicles. In submitting the net brake horsepower of these vehicles, however, manufacturers should submit the definition of the term they are utilizing.

#### VIN Legibility

In the final rule published on August 17, 1978 (43 FR 36448), S4.5 provided that the three sections of the VIN should be grouped, i.e., appear as a full section without being split, but inadvertently omitted the provision that had been proposed for requiring spacing between the sections. This omission was corrected in the amendment to the rule published on November 9, 1978 (43 FR 52246), which specified that the space between sections shall be twice that of the space between characters.

A number of manufacturers petitioned for reconsideration of this provision, claiming lack of notice for it. These manufacturers indicated what they considered to be serious lead time problems and substantial cost increases if the spacing requirement was not deleted. They also cited section 5.7 of ISO 3779, which provides that spaces should not appear in the VIN, although a symbol or character may be used between sections. While the agency still believes that separating the three sections of the VIN would improve the accuracy of its transcription, the added cost burden to the manufacturers and the interests of international harmonization argue in favor of deleting the spacing requirement. The requirement is therefore eliminated. The agency points out, however, that the legibility of the

VIN is of concern and will be carefully reviewed after the standard takes effect.

Ford Motor Co. points out that S4.3.1 requires that all characters in the VIN must have a minimum height of 4 mm regardless of where the VIN appears on a vehicle. The intent of the agency, as Ford correctly perceives, was to limit the requirement to the VIN as it appears in the passenger compartment, since only in that location need the characters be read from a distance. The standard is amended to make this limitation clear.

#### Incomplete Vehicle Attributes

Table I in the standard categorizes vehicles by type and specifies the vehicle attributes that must be decipherable from the VIN for each type. In the amended standard published on November 9, 1978, the agency added a type designated "incomplete vehicle." The attributes required to be decipherable from the VIN for this type were those attributes common to both trucks and buses. This type was established because incomplete vehicles often may be completed as either a truck or a bus, and the incomplete vehicle manufacturer would have little way of knowing the final configuration.

American Motors Co. petitioned the agency to delete the requirements for incomplete vehicles and require instead that the second section of the VIN of incomplete vehicles reflect those attributes which the incomplete vehicle manufacturer anticipates the vehicle will have when completed. As this would place a more onerous burden on the manufacturers by requiring additional information to be encoded than the current requirement, as well as call for considerably more prescience than the manufacturers have suggested they usually possess, the petition is denied.

In this regard, it should be noted that the language of S4.5.2 and the "incomplete vehicle" type category in Table I contained in the amendment to the rule published November 9, 1978, were inadvertently omitted from the notice of proposed rulemaking issued the same day. The amended rule issued today corrects that error. The definition of the term "type" is also amended to include "incomplete vehicle" as a separate type.

Assignment of the VIN to Motor Homes  
Manufactured in More Than One Stage

The amendment published on November 9, 1978, provided that in the case of vehicles other than motor homes, manufactured in more than one stage, the VIN would be assigned by the incomplete vehicle manufacturer. In the case of motor homes, the final stage manufacturer would make the assignment. The rationale of the agency for requiring the final stage manufacturer of motor homes to assign the VIN rested on two grounds. First, the comments to the docket submitted by the Recreational Vehicle Industry Association (RVIA) in response to the notice of proposed rulemaking (Docket entry 1-22-N04-048) appeared to support motor home manufacturers assigning the VIN for their vehicles, and the RVIA did not petition to change the requirement after the publication of the final rule on August 17, 1978. Secondly, a number of States and State organizations pointed out the law enforcement problems inherent in identifying a vehicle whose outward appearance was, for example, a Winnebago while the manufacturer identifier indicated the vehicle was a Ford.

In response to the November response to petitions, petitions for reconsideration were received from the RVIA, jointly from the VESC and the AAMVA (VESC/AAMVA) and from the State of Maryland. The RVIA, in its petition, appears to have reversed its previous position, and cites a number of practical and economic reasons why the incomplete vehicle manufacturer should assign the VIN to motor homes. These include the need for uniform VIN assignment by the incomplete vehicle manufacturer, unavailability to the final stage motor home manufacturer of necessary data concerning the incomplete vehicle, the need of incomplete vehicle manufacturers to carry out recall campaigns, and the economic burden on lower volume motor home manufacturers. The VESC/AAMVA and State of Maryland in their petitions appear to believe that law enforcement officers will be able to identify motor homes by the manufacturers of their underlying chassis. Further, it appears that the States adopted a procedure on September 14, 1978, by which the final stage motor home manufacturers would add an additional three character identifier to the incomplete vehicle manufacturer's VIN. The States would then add that identifier to their VIN files.

It is not clear to the agency how the States can include this additional information in their data storage systems based on their stated capacity in other comments to the dockets. Nonetheless, the exception to the rule in the case of motor homes was created in response to the initial comments of the manufacturers and the States. They now conclude such a provision will be a hindrance. For that reason and because either the incomplete vehicle manufacturer or the final stage manufacturer is capable of providing a VIN, the agency believes it appropriate to remove the exception. Therefore, sections S2, S3, and S4 are amended accordingly.

Mack Truck also petitioned to eliminate requirements for encoding those truck attributes which can be easily altered by purchasers. While it is true that several of the attributes required might occasionally be subsequently altered, such as altering gross vehicle weight rating by changing tires, the agency concludes that this information is still important as a basic classifier of vehicle type for safety research and should be required. In most instances, the agency believes this information will not become invalid.

#### Check Digit Highlighting

The November 1978 notice of proposed rulemaking requested comments on the effectiveness and advisability of highlighting the check digit as an aid in locating it on the VIN plate. All commenters, whether manufacturer or VIN user, recommended that the check digit not be highlighted. The comments suggested that highlighting the check digit would increase cost to manufacturers and confusion among users without comparable advantages in check digit recognition. Consequently, the NHTSA has concluded that the check digit is sufficiently recognizable by its physical position in the VIN without being further highlighted.

#### Weight Increments For Vehicles With a Gross Vehicle Weight Rating Greater Than 10,000 Pounds

In the Notice of Proposed Rulemaking issued November 9, 1978, the Administration proposed that the weight rating data for vehicles with a gross vehicle weight rating greater than 10,000 pounds be delineated in 5,000 pound increments.



The Freightliner Corporation supported the amendment, stating that gross vehicle weight rating was an important statistical consideration. The Motor Vehicle Manufacturers Association and General Motors recommended that the GVWR not be required for vehicles with a GVWR over 10,000 pounds, as this information is contained on the certification label. The MVMA also questioned why this information is required for trucks with a GVWR of less than 10,000 pounds, but not for passenger cars. Ford Motor Co. commented similarly.

International Harvester (IH) also opposed the amendment because it would restrict IH's current VIN scheme and because the GVWR of incomplete vehicles is easily modified. Freightliner reached the opposite conclusion in its comment, stating that it is not economically feasible for drastic changes to be made in GVWR after initial manufacture. Paccar, Inc. did not oppose the proposal, but recommended instead that the classification system currently being used in the industry, which consists of eight weight rating classifications, be substituted. In this way, Paccar argues, GVWR information would be more relevant to manufacturers and easier for the manufacturer to encode.

As the agency pointed out in previous notices, highway safety research can be carried out utilizing the VIN appearing on accident reports even though the vehicle itself is not available. Consequently, the appearance of the GVWR on a vehicle's certification label is not a substitute for encoding the GVWR in the VIN. While GVWR does not indicate the actual load being carried by the vehicle, it is extremely useful in classifying the vehicle itself, particularly its size. After reviewing the comments received on this proposal, the agency has concluded GVWR information for trucks should be retained, since it facilitates analyzing differences in performance and accident experience of different size vehicles.

The agency is also persuaded by the argument of Paccar that institutionalizing the weight rating classification system currently being used in the industry would be equally useful and considerably less disruptive. For example, certain vehicle models fall within one weight rating class although they may fall within two GVWR cate-

gories utilizing the proposed system. The standard is, therefore, amended accordingly.

The requirement that GVWR be supplied for passenger cars was deleted because there were not enough codes to include that information in a fixed format system along with the other passenger car information considered more important by the agency. Information relating to the GVWR for light trucks was considered more important, as it represents not only a way of identifying and monitoring the vans and light trucks which are becoming an important element of the vehicle population as distinguished from heavy trucks, but also the weight makeup of that class. The NHTSA denies, therefore, petitions to eliminate the requirement for encoding the GVWR of trucks and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. However, to take account of the fact that there are fewer models of light trucks and to ease the burden on manufacturers, the number of GVWR weight categories is reduced to eight for vehicles with a GVWR of 10,000 pounds or less.

Also with respect to light trucks, the agency wishes to note that while it has not included a requirement that restraint type information be supplied for light trucks, it does intend to propose this requirement when it proposes passive restraint systems for those vehicles.

#### VIN Fixed Format

In the notice of proposed rulemaking published on November 9, 1978, the agency proposed further fixing the VIN format by specifying the alphabetic or numeric nature of the 4th, 5th, 6th, 7th, 11th, and 12th characters of the VIN for passenger cars, multipurpose passenger vehicles with a GVWR of 10,000 pounds or less, and trucks with a GVWR of 10,000 pounds or less. In making the proposal, the agency explored in detail the advantages and disadvantages of fixing the format. In summary, fixing the format will allow some types of VIN errors to be corrected when initially transcribed by clerks and others who can quickly become familiar with the established format. In addition, forms on which the VIN is transcribed can be designed to indicate whether a character should be alphabetic or numeric. However, fixing the VIN format will not eliminate the need for the check digit, will

lead to a reduction in the information-carrying capacity of the VIN, and will result in alterations to the VIN schemes which manufacturers now utilize.

Comments in response to the notice confirmed the NHTSA analysis of the matter. Specifically States supported the conclusions about the effect of expanding the fixed format on transcription error rate and the manufacturers supported the conclusions about the effect of the expansion on the information capacity of the VIN. Manufacturers commenting on the proposal were unanimous in their opposition. Chrysler predicted more costly and complex decoding. Toyo Kogyo concluded that a fixed format would end any hopes of continuing their system of specific information being encoded in specific positions. Volkswagen pointed to a major disruption in their current system, and questioned why further fixing the format was necessary as German clerks have achieved an error rate of approximately 1 percent without the format fixing.

Similar objections to those cited above were made by other manufacturers commenting.

In addition, Rolls-Royce Motors requested that if a format is to be fixed, all characters should be specified as alphabetic. In this way, Rolls-Royce, as a low volume manufacturer, could reflect changes in a vehicle without also having to change the actual model code. British Leyland Motors, Inc. also requested that the first four characters of the second section be alphabetic to provide for additional informational capacity. Toyota proposed that the fourth as well as the fifth characters of the second section not be fixed for the same reason.

The Motor Vehicle Manufacturers Association, Ford Motor Co., and International Harvester specifically objected to specifying for cars, light trucks, and light multipurpose vehicles that the 3rd character of the 3rd section (i.e., the 11th character of the VIN) of the VIN must be numeric. Their objections were based on the resulting substantial reduction in the number of unique manufacturer identifiers for manufacturers producing less than 500 vehicles per year which would be available in the third section. Also, several truck manufacturers pointed out that they utilized the 11th character of the VIN

to represent the assembly line on which the truck was produced, and that they maintained more assembly lines than the number of numerical characters available.

The VESC, AAMVA, the States, and the insurance industry all supported the fixed format scheme, pointing to an anticipated lessening in the number of transcription errors as described by the agency in the NPRM.

The petitions requesting a flexible format or changes in the character specifications are denied except for those requesting that the 3rd character of the 3rd section be permitted to be either alphabetic or numeric. The agency recognizes that the use of a fixed format will result in a substantial reduction in the information carrying capacity of the VIN. However, the avoidance of transcription error remains the paramount concern. Nothing in the docket suggests that the administration was incorrect in its assumption that transcription errors will be reduced by the use of the fixed format system.

Fixing the format of the 3rd character of the 3rd section presents a more difficult choice. On one hand, fixing the format of this character as numeric will identify an error if an alphabetic character is substituted. However, since the preceding character is not specified as either numeric or alphabetic and the character following it is numeric, the opportunity to identify transpositions of these characters is limited. On the other hand, it seems possible that the number of manufacturers producing less than 500 passenger cars, multipurpose passenger vehicles or trucks with a GVWR of 10,000 pounds or less a year over the next 30 years will exceed the capacity of the VIN with the third character of the third section fixed. This is particularly true as the recreational use of these vehicles increases.

Further, the ability to locate the assembly line on which a defective vehicle is manufactured will have an important safety benefit. In cases involving manufacturing defects, this information will enable a determination of which of similar vehicles produced on different assembly lines need to be recalled. Consequently, the agency has determined not to adopt the proposed requirement that the 3rd character of the 3rd section of the VIN be numeric. In this way, a sufficient number

of manufacturer identifiers can be assured with the least disruption to the existing system used to identify trucks.

The VESC AAMVA and several other commenters suggested that the NHTSA VIN system could be further improved by fixing the specific information required to be decoded from each position of the second section of the VIN. These petitions are denied. Fixing the information contained in each position of the second section of the VIN would have no effect on the accuracy of transcription of the VIN, since clerks and others could not easily memorize the myriad of characters manufacturers use to represent data contained in these positions. While the information contained in the second section would be more easily decipherable by those using a table if each position were specified, the amount of information which could be represented would be substantially decreased and the disruption to manufacturers substantially increased.

These problems were resolved by the VESC, after discussions with the manufacturers, by specifying the content of only one character of the second section in establishing the VESC VIN. With the NHTSA requirement for encodement of additional information beyond that required by the VESC, the agency concludes that specifying the informational content of each character in the second section is not practicable.

Although discussed comprehensively in previous notices, it should be noted again that the adoption of a fixed format only eliminates a particular class of VIN errors and in no way eliminates the need for the check digit. While the fixed format is able to identify those errors which result in an alphabetic character being substituted for a numeric character or vice versa, the check digit process will detect most erroneous characters regardless of type. Because vehicle owners are notified of recalls through their vehicle's VIN, it is essential that this information be retained in the most accurate fashion possible.

#### Check Digit Position

In the notice of proposed rulemaking issued on November 9, 1978, the agency proposed positioning the check digit immediately preceding the fourth position of the VIN in the interest of international harmonization and manufacturer

ease of compliance. As the agency pointed out in the notice, the second section of the VIN system adopted by the ISO contains 6 characters. By having the check digit immediately precede or follow the second section, the five characters of the second section plus the check digit become the 6 characters necessary to assure compatibility with the ISO standard. If the check digit is positioned at either end of the VIN, the second section contains only 5 characters and the VIN is incompatible with the ISO system. However, specific comments were also requested concerning the advantages of placing the check digit at either end of the VIN.

Several States and the VESC AAMVA submitted comments which supported placing the check digit at the beginning of the VIN.

In its comments, Maryland did not object to the check digit. It felt that the combination of fixed length, improved format, and the check digit routine will reduce transcription errors and provide an edit routine to ensure file integrity. However, Maryland also anticipated that some States would not be able to store a 16 character VIN. (For the purposes of comparison, it bears emphasis that the NHTSA VIN has 16 characters plus a check digit, the VESC VIN has 16 characters, and the ISO VIN has 17 characters.) These states would, in Maryland's view, eliminate prior to computer storage the check digit and perhaps a second character after producing a certificate of title. If the certificate of title were subsequently lost, there would be no record in the State files of a complete VIN, and the owner would have a great deal of trouble when transferring title to the vehicle.

In a similar situation, Maryland believes some States will choose to eliminate the check digit and a character of the VIN prior to producing the certificate of title, thereby creating a defective title which another State could refuse to honor. Indeed, Maryland considers this problem so serious that it believes a uniform system of dropping characters from the VIN is a certainty if additional Federal funds are not available to pay for additional State VIN storage capacity.

From this state of affairs, Maryland concludes that placing the check digit to the left or right of the VIN would encourage the check digit to

be dropped in the inevitable uniform system of dropping VIN characters.

The NHTSA does not concur in this analysis. Since the States have supported in their comments to the docket the 16 character VESC VIN, the agency assumes they are willing to store this number of characters and that they would have developed the capacity necessary for that purpose even in the absence of the NHTSA VIN. If a State desires to drop the check digit, rather than store it, the State can do so irrespective of its position in the VIN either by appropriate data processing techniques or by simple and proper design of the forms on which the VIN is transcribed.

As Maryland points out in its comment, and as the agency has pointed out in previous notices, the NHTSA does not regulate the States in regard to the VIN. Thus, the NHTSA cannot require the State to store or use the check digit. The agency is confident, however, that States will seek to facilitate their citizens being made aware of potential safety defects and noncompliances in their vehicles and to simplify their task in transferring their vehicles. Consequently, the agency believes they will utilize the simple data processing procedure for eliminating the check digit if they chose not to store it. The State comments to the docket would indicate, however, that all six are planning to store the 16 character VIN and the check digit.

The Vehicle Equipment Safety Commission and the American Association of Motor Vehicle Administrators (VESC/AAMVA) also responded jointly on December 11, 1978 to the notice of proposed rulemaking. In addition, certain aspects of their submission were supplemented by the VESC on December 29, 1978, as the result of NHTSA questions about the basis for their submission, and this supplement has also been placed in the docket (01-22-NPRM-No. 7-41).

The VESC/AAMVA comment of December 11, 1978, maintained that from 33-37 States are currently incapable of "inputting" 17 characters into their vehicle identification files. In its supplementary docket submissions, the VESC stated that it was unable at that time to submit a list identify those States which could not input 17 characters. The VESC also explained that while

in most instances State capability could be expanded by reprogramming and the purchase of additional equipment, this would be very expensive.

Like Maryland, the VESC/AAMVA concluded that those States which are unable to currently input 17 characters for lack of equipment and appropriate programming will choose to drop at a minimum the check digit. This will create, in the view of the VESC/AAMVA, lack of uniformity, confusion, and a regenerated check digit based on the State's computation which will differ from the manufacturer-assigned check digit. To place the check digit anywhere but the beginning or the end of the VIN, in the view of the VESC/AAMVA, would create "unacceptable data handling and data regeneration problems." Therefore, the VESC/AAMVA concluded that the check digit must be dropped entirely or moved to the left of the VIN.

In its supplement, the VESC/AAMVA explained that the data handling problems referred to were "incorrect inputs" into the computer because State personnel would drop by mistake a character which was not the check digit while transmitting the VIN. Further, problems would occur due to the inconsistency between States which have a 16 character VIN capacity and States which have a 17 character VIN capacity.

The VESC/AAMVA also maintained that the cost burden to the States to comply with the NHTSA standard would be substantial. Vermont, the only State whose cost VESC cited with confidence, projected a cost of \$250,000 to implement the NHTSA VIN system and a 2 to 3 year completion date. The VESC/AAMVA reported that Vermont has only 380,000 vehicles and limited on-line computer time. Consequently, the cost for a State with more sophisticated computer equipment would be considerably higher in the VESC/AAMVA view. Vermont also advised the VESC/AAMVA that only a negligible amount of Federal funds would be available to carry out the changeover.

The VESC/AAMVA stated that specific cost data from the other States was not available, but the cost to the States of Illinois, Michigan, and New York would be materially higher than Vermont, and that Massachusetts was projecting a

VIN changeover cost of from \$300,000 to \$400,000. In the case of Massachusetts, it is not clear whether this represents the changeover cost to convert to the VESC VIN or NHTSA VIN.

In its supplement, the VESC AAMVA was unable to provide at that time further data on these cost figures for the NHTSA VIN.

The VESC AAMVA also attacked the rationale of the agency in placing the check digit within the VIN structure. In the view of the VESC AAMVA, the practical effect of that placement is mandating the recording and storage of a 17 character VIN. The VESC AAMVA concludes that the NHTSA must either drop the check digit or place it outside the VIN structure.

Of particular concern to the VESC AAMVA is the difficulty they suggest will be encountered in instructing a title clerk or police officer to drop the check digit in an internal position rather than in the first or last position. In its supplement, the VESC AAMVA agreed with the agency that a computer can be programmed to drop any character in the VIN or the check digit and forms can be designed to indicate the check digit just as easily as they can be designed to show whether a character should be alphabetic or numeric. However, the VESC AAMVA still believes strongly that a serious problem would exist if State personnel drop the check digit prior to transcription on a form or entry into a computer. Further, the VESC AAMVA believes it impossible to design a form which signified the check digit for every intended use of the VIN.

The key question raised by the VESC AAMVA relates to the ability of the States to deal with a 16 character VIN with an internal check digit. This issue was also of concern to the NHTSA. A review of the comments to the docket from the six States directly responding suggests that the problem is not as severe as the VESC AAMVA believes, however.

Unfortunately, only three of these States submitted cost data to the docket, and the VESC AAMVA was unable to submit data relating to their conclusions. Further, as noted above, the agency has not received information from the VESC AAMVA concerning the additional cost of implementing the NHTSA VIN system as

compared to the cost of implementing the 16 character VIN system proposed by the VESC.

Oregon estimated its cost to implement the NHTSA VIN system at \$17,650 for reprogramming. Vermont estimated its costs at \$250,000, of which \$180,000 would be for systems analysis and programming and \$70,000 would be for public relations, training, and redesigning forms. Washington State estimated its costs for implementing the NHTSA VIN system at \$36,000 the first year for reprogramming, equipment, and key punching, and \$25,000 each subsequent year for equipment and key punching.

The agency does not understand why the changeover costs of Vermont are approximately 10 times higher than the two other States submitting cost data. The agency notes, too, that the motor vehicle population of Vermont is approximately one-eighth that of Washington and one-fifth that of Oregon. The cost of adopting either the NHTSA VIN system or VESC VIN system should be approximately equivalent and should consist primarily in reprogramming and procuring additional computer data storage units, and these costs should be in some degree proportional to the vehicle population. The agency does note, however, that Vermont's highway safety annual work program for this fiscal year includes spending \$280,000 to implement a R. L. Polk computer program to check for valid VIN's. Since this R. L. Polk program will be outdated with the promulgation of the NHTSA standard, the agency hopes that Vermont's implementation of the NHTSA VIN system can be consolidated with the implementation of a revised VIN edit routine, thus achieving some savings for Vermont.

Based on the agency's assessment of implementation costs and on the actual cost data submitted to the docket, the NHTSA concludes that the cost to be incurred by the States to implement the NHTSA VIN system will not be so significant as the VESC AAMVA comments suggested. As explained previously, the primary costs to the States of implementing the NHTSA system would be those of reprogramming and of purchasing additional data storage equipment.

The agency's conclusion about lack of substantial cost is further supported when one considers that the members of the VESC adopted and the

States supported the VESC 16 character VIN system. Presumably, the States were prepared to adopt it. Thus, the cost burden which the NHTSA regarded as particularly important to the States is the incremental cost of the NHTSA VIN system over the VESC VIN scheme. In the case of Oregon, the cost differential between the NHTSA and VESC VIN systems would be negligible, as only reprogramming is required and the effort needed to reprogram for 17 characters, either stored or dropped prior to storage and then regenerated, would not be substantially more than it would be for 16 characters. In the case of Washington, the State itself estimates the added cost of the NHTSA system over the VESC system would be \$2,500 annually for keypunching the added character.

The agency remains convinced that the States will seek methods of simplifying and standardizing titling and other procedures involving the VIN. All parties appear to agree that by proper design of forms and relatively simple programming of computers, the check digit may be eliminated from any location within the VIN should a State choose to do so. It appears all agree, also, that the appropriate check digit may be regenerated when the VIN is removed from data storage and printed. What the VESC/AAMVA and Maryland appear to fear, however, is that police officers, clerks, and others will attempt to locate and eliminate the check digit in the process of transcribing the VIN. Why persons would be instructed to drop the check digit has not been suggested, however. Further, simple instructions should prevent that from occurring. Accordingly, premature dropping of the check digit is clearly avoidable. The agency is impressed that none of the States directly submitting comments to the docket have suggested that it does not intend to store the check digit along with the VIN.

The VESC/AAMVA has incorrectly evaluated the practical effect of placing the check digit within the VIN. The placement of the check digit within the VIN does not necessitate the storage of the check digit. Further, as the agency expressly explained in the previous notice and above, the choice was made to allow the VIN mandated by the NHTSA to be compatible with

the VIN mandated by the ISO. In this way, manufacturers could use the same VIN structure on vehicles marketed in the United States and those marketed outside the country. The international harmonization of the NHTSA VIN Standard is not only consistent with United States policy in this area as articulated by the President (14 Weekly Comp. of Pres. Doc. 1630), but eases substantially the regulatory burden on manufacturers producing vehicles for both the United States and foreign markets since they need not maintain two separate VIN systems. If the VESC VIN scheme was adopted, manufacturers would face the added cost of maintaining one VIN system for the United States and another VIN system for the rest of the world.

Comments were also received on the question of the check digit position from a number of insurance companies and insurance industry groups. Nationwide Insurance stated that the location of the check digit within the VIN should not present any problem to VIN users since sophisticated procedures were not necessary to manage the check digit regardless of its position. Further, the use of the check digit caused Nationwide no great concern. The Alliance of American Insurers believed some users would prefer the check digit be placed outside the VIN, but stated that "ideally" the check digit should be retained as an integral part of the VIN. State Farm Insurance Co. stated that it intended to store the check digit, but suggested it should be positioned at the beginning or end of the VIN in the interest of allowing it to be dropped more easily by users who did not intend to store it. State Farm did not explain how the ease of dropping the check digit varied with its position. Allstate Insurance Co. supported the use of the check digit, and recommended that it be made an internal part of the VIN. Finally, the Insurance Institute for Highway Safety strongly supported making the check digit an internal part of the VIN.

No manufacturer supported moving the check digit to the first or last position of the VIN, but there was a difference of opinion among the manufacturers whether the check digit should precede or follow the second section of the VIN.

Volkswagen and British Leyland supported

placing the check digit immediately preceding the second section of the VIN, as this would make the VIN more compatible with the European VIN system. General Motors and American Motors supported the check digit in this same position, as this seemed to foster international harmonization. International Harvester supported the check digit in this position, as this would be least disruptive to its current system. While not commenting to this docket on the issue, Mercedes-Benz and BMW supported in their petitions for reconsideration of the August 18, 1978 rule placing the check digit immediately preceding the second section. Mercedes supported this position because it would cause the least disruption to its current system. BMW supported this position because the check digit would then not separate the two flexible sections of the VIN, thus allowing the establishment of a VIN "management system".

Harley-Davidson, Toyo-Kogyo, Chrysler, and Peugeot-Renault supported the check digit immediately following the second section, as this separated the fixed section of the VIN from the variable section of the VIN. Rolls-Royce supported the check digit in this position, as it has already begun work on a system which would position it there.

Ford and the Motor Vehicle Manufacturers Association took no position on whether the check digit should precede or follow the second section so long as it was in one of those two positions.

In its notice of proposed rulemaking published on November 9, 1978, the agency relocated the check digit to a position preceding the second section of the VIN in the interest of ease of compliance for those manufacturers who desired to use a different system in Europe than they did in the U.S. It seems, however, that the manufacturers are unable to agree upon which position actually is preferable. The agency must therefore determine which position makes more practical sense.

The agency concludes that the check digit should be placed in immediate proximity to characters which are variable. While only some manufacturers may have to change manufacturer identifiers if they produce more than one type of vehicle, all must change the final eight characters

of the VIN. Consequently, the agency concludes that the check digit should precede these final eight characters since it too is variable. Thus, many manufacturers will be able to prepare their VIN plates with the first part of the VIN pre-stamped. This will lower costs and aid in preventing alterations since these characters can be molded as part of the plate.

Some manufacturers and manufacturer associations also petitioned to eliminate the check digit entirely. The agency's rationale for the check digit and its utility in eliminating error have been comprehensively reviewed in previous notices. In summary, the check digit offers the most effective way known to the agency to determine erroneously recorded VINs prior to storage in motor vehicle files.

Peugeot-Renault raised in their comment a new issue of international harmonization. In the view of Peugeot-Renault, the ISO standard requires that the middle section of the VIN remain the same for all vehicles of the same description. After a review of the ISO standard, the NHTSA cannot agree with this view. ISO Standard 3779 specifically provides that if not all the characters in the second section of the VIN are used for descriptive purposes, the manufacturer may fill the section with another character for which there are no restrictions.

#### Optional Early Compliance

The NPRM proposed that compliance with all aspects of the amended standard be permitted beginning September 1, 1979, for passenger cars and be required for all vehicles beginning September 1, 1980. Optional early compliance was proposed because the agency concluded that some manufacturers could fully implement the amended standard before September 1, 1980, and because the agency was concerned that implementation of the amended standard might be complicated by the State of Maryland's proposal to implement an inconsistent VIN system on January 1, 1980. Express authorization of early compliance would have put the amended standard into effect on September 1, 1979, and removed any question about the preemption of State standards governing VIN format and content.

The agency has since learned that the State of Maryland has formally proposed to change its

implementation date to September 1, 1980. If that new proposal is adopted, the need for express authorization for early compliance with the amended NHTSA standard will be eliminated. Based on indications that the proposal will be adopted, the agency has decided to delete the express provision for early compliance. It should be clearly understood, however, that this deletion does not preclude early compliance with most aspects of the amended standard. Except to the extent that it is not possible for a manufacturer to comply simultaneously with an existing and future version of a Federal Motor Vehicle Safety Standard, early compliance is always permissible.

#### Effective Date

A number of commenters requested that the effective date be postponed to allow for acquiring equipment and for system development. Mack Truck requested that the effective date be postponed until two years from the issuance of the final rule. Volkswagen requested that the effective date be 18 months from the publication of the final rule. International Harvester opposed the September 1, 1980 effective date as not practicable, but did not suggest an alternative effective date. BMW recommended an effective date 3 years after the standard is issued. The VESC/AAMVA suggested an effective date two to three years after the standard is finalized. The State of Vermont proposes an effective date of September 1, 1981, or September 1, 1982, because its computer programming effort is committed for the next 1½ years.

The agency is unconvinced that the effective date of the standard should be changed. While the final details of the proposal were not known until today, the necessity of implementing a new VIN system and most of its essential features have been known at least since the August 1978 final rule.

With an effective date eighteen months in the future, the desires of Volkswagen have been met and the stated needs of Mack substantially met. While BMW and International Harvester believe they need more time to comply, they have presented no evidence in their comments that their systems development, reprogramming, and marking equipment installation cannot be accomplished within the specified time frame. Further,

BMW must comply prior to September 1, 1980 with the compatible ISO standard, and presumably can comply with the NHTSA standard shortly thereafter. IH has stated that its inability to comply comes from the need to derive a new coding system. The agency believes 18 months will be sufficient for this purpose, as it is for the other manufacturers.

From the comments, it appears that California, Oregon, and Washington can comply with a January 1, 1980 effective date, and Maryland can prior to that date comply with a 16 character VIN requirement.

Of the States commenting, only Vermont believes it can not comply by September 1, 1980. Since Vermont's time problem rests with a prior 1½ year programming commitment rather than the 6-18 months the State considers necessary to implement the NHTSA VIN system, it is hoped that Vermont's revision of the now outdated R. L. Polk VIN verification program planned for this fiscal year can be combined with the reprogramming necessary to implement the NHTSA VIN system.

The VESC/AAMVA objected to the effective date on behalf of the States. The agency notes, however, that a 16 character VIN was adopted by the VESC in July 1977. Thus, the States were aware on that date that a 16 character VIN would be implemented shortly. Further, Maryland, by requiring passenger cars sold in that State after January 1, 1980, to have a 16 character VIN made it highly likely that manufacturers would adopt a 16 character VIN system by that date. (It should be noted that Maryland on February 9, 1979, proposed that its standard should take effect on September 1, 1980. This is the proposed effective date for the NHTSA standard). Manufacturers in all probability would not utilize one system for Maryland and another for the other States. The intent of Maryland to require manufacturers to comply with its VIN standard on September 1, 1980, whether or not the NHTSA extended the effective date of its standard, was confirmed on February 22, 1979 (Docket 01-22-No. 7-012). Consequently, any action of NHTSA to extend its effective date would not aid the States in view of Maryland's position.



The NHTSA concludes, therefore, that all States should have been prepared to deal with a 16 character VIN six months prior to the effective date of the NHTSA standard. This view is further supported by the comments of the States throughout this rulemaking effort which strongly supported the adoption of the VESC 16 character VIN scheme. Since the elimination of the check digit prior to storage is a reasonably simple task, the agency concludes the States will be able to deal with NHTSA-mandated VINs by the time the standard takes effect. The agency is also certain that the coordinative efforts of the AAMVA will aid the States in dealing with the NHTSA VIN system by the time the manufacturers comply with the standard. The agency too stands ready to provide technical assistance if any should be needed.

Therefore, petitions to change the effective date of the standard are denied.

#### Notice of Change in Encoded Data

The VESC AAMVA and several States once again raised the issue of S6 of the standard which requires manufacturers to notify the NHTSA 60 days before changing the information decipherable from a particular VIN. It is the view of the VESC AAMVA that requiring the manufacturers to submit this information to NHTSA will indirectly result in their not submitting it to the States.

This issue was discussed in the amendments to the rule published on November 9, 1978. The NHTSA is unable to understand why the manufacturers who voluntarily have been submitting material to the States since 1901 would suddenly cease doing so. The subsequent VESC submission to the docket does not explain the basis for its concern. In the unlikely event that the manufacturers cease to supply this data to the States, the NHTSA will entertain a petition for rulemaking from the States to institutionalize a requirement for the submission of that data to the States. Section S6.3 is amended, however, to require that all the information required to be submitted to the NHTSA shall be submitted at least 60 days before affixing the VIN utilizing the encoded information. This amendment is made to remedy an ambiguity in the standard as presently written.

#### Use of a Hand Held Calculator

In the final rule issued August 17, 1978, (43 FR 36448) the agency stated its belief that check digits could be calculated by using inexpensive, hand held calculators. The agency was not referring to the type of calculator currently available over the counter, but a calculator preprogrammed to carry out the check digit procedure when the VIN itself was keyed in. With the adoption of the fixed format as an aid in avoiding transcription errors, however, check digit calculations in the field are unlikely. Therefore, the availability of a preprogrammed calculator is no longer of concern to the agency.

The VESC/AAMVA also points out that the check digit system is not infallible since the same numerical value is assigned to three or four characters. For example, "D", "M", "U", and "4" are all assigned the numerical value "4" in the check digit procedure. The odds that one of these characters will be erroneously substituted for the other resulting in the correct check digit is only one in eleven, however. Consequently, the check digit procedure will reduce the number of incorrect VINs in computer files by more than 90 percent.

#### Manufacturer Identifier for Manufacturers Producing Less Than 500 Vehicles of Any One Type Annually

S4.5.1 of the standard provides a special procedure for assigning the manufacturer identifier to manufacturers who produce less than 500 motor vehicles of a type annually. In this procedure, the third character of the VIN is the number 9 and the eleventh, twelfth, and thirteenth characters of the VIN along with the first three characters represent the manufacturer identifier. The VESC AAMVA objects to this provision as complicated to process by computer and suggests it should be eliminated.

This provision was adopted because the agency was unable to ascertain with certainty that there is a sufficient number of three character identifiers to uniquely represent all vehicle manufacturers, makes, and types over the next thirty years, the cycle of the amended standard. In addition, this method of identification is identical with the method adopted by the ISO, and its inclusion in the NHTSA standard would be a

further step in the direction of international harmonization.

The agency is unconvinced that the problems expressed by the VESC AAMVA are substantial. The occurrence of a VIN from a manufacturer of less than 500 vehicles of a type in any State's vehicle population will be rare. As the VIN format for a manufacturer of less than 500 vehicles of a type is the same as that for all other manufacturers, there should be no impediment to entering it into storage. The need to generate the name of the manufacturer from the data base, the situation where specific programming will be called for, will be even rarer. Against the arguments of the VESC AAMVA, the integrity of the VIN system over thirty years and the interests of reducing compliance costs through international harmonization must prevail.

#### Reconstructed Vehicle VIN

The VESC AAMVA and the State of Vermont again raise the issue of assigning a VIN to reconstructed vehicles. As was pointed out in the amendment to the rule published on November 9, 1975, amended Standard No. 115 only applies to reconstructed vehicles if the chassis is new. Evidently, the VESC AAMVA and Vermont interpreted this to mean that the VIN of the original chassis should be assigned to the reconstructed vehicle. This is only true if the chassis is new, in which case the vehicle would be one manufactured in more than one stage and the incomplete vehicle manufacturer would assign the VIN.

The VIN for the homemade vehicles which Vermont apparently refers to would be assigned by Vermont, as it sees fit. Presumably, a reconstructed vehicle VIN scheme which was compatible with the NHTSA VIN system could be created, but such a scheme would not be within the ambit of Standard No. 115.

#### Assignment of Manufacturer Identifiers

Saab-Scania has requested further information concerning the assignment of manufacturer identifiers. When the final rule was issued, the Society of Automotive Engineers (SAE) immediately submitted on behalf of many domestic and foreign manufacturers a list of approximately five hundred identifiers. They have been

registered to the manufacturers to whom they were assigned. Because the SAE has progressed so far in its assignment process, the agency is discussing with the SAE its assigning manufacturer identifiers on behalf of and under the authority of the NHTSA. A notice will appear in the Federal Register when this matter is resolved.

#### Public Meeting

The VESC AAMVA stated that the agency had not followed through on its announcement in the advance notice of proposed rulemaking that it anticipated a public meeting for oral submission of comments concerning VINs. At the out-set, the agency did contemplate the possibility of a public meeting to supplement the opportunity for written comment. Holding a meeting proved unnecessary, however. Substantial written public comments have been received in response to the agency's five notices. Comments received from the AAMVA and VESC are a good example of the comments received and their completeness in responding to the involved issues. For example, in response to the advance notice of proposed rulemaking, the AAMVA submitted not only staff comments, but also supplementary material from 50 States and the District of Columbia. Similarly, extensive comments were also submitted in response to the notice of proposed rulemaking.

The agency also notes that a public meeting concerning the VIN was held under the aegis of NHTSA's National Highway Safety Advisory Committee on March 21, 1978, in which the VESC and AAMVA participated. This meeting resulted in 61 pages of testimony and 110 pages of supplementary material. Further, meetings were held between the NHTSA and VESC and AAMVA personnel on September 21, 1977 (Docket 01-22-No. 3-92), November 4, 1977 (Docket 01-22-No. 3-93), and November 18, 1977 (Docket 01-22-No. 3-94).

#### Plant of Manufacture

BMW petitioned the agency to delete the requirement for encoding plant of manufacture, since it currently utilizes a seven digit production sequence number, the first character of which would occupy the space required to be occupied by the character designating the plant of manu-

facture. A system which would have allowed BMW to maintain a seven character sequential number was proposed in the notice of proposed rulemaking published on January 16, 1978 (43 FR 2189), but withdrawn in the face of criticism that it was too complex. BMW suggests no reason which would cause the agency to reopen the issue, and its petition is denied. The agency notes, however, that the rule does not restrict a manufacturer from submitting more than one character to represent a single plant. Consequently, a sophisticated allotment of sequential blocks might be sufficient to allow BMW to maintain its seven digit production sequence numbering system.

#### Meaning of Definition of "Chassis"

In the amendment issued on November 9, 1978 the agency clarified the meaning of the term "chassis" to at least discriminate between a truck and a truck-tractor. Ford has requested that this clarification be rescinded, as the 2 percent of its heavy truck chassis which are not sold as incomplete vehicles are completed at a later date under contract to Ford. When Ford assigns the VIN, it states it does not know the final form of the vehicle. To the extent Ford does not know the final form of the vehicle when it assigns the VIN, the chassis information need not discriminate between truck and truck-tractor.

#### Trailer VIN's

The Truck Trailer Manufacturers Association (TTMA) petitioned to delete the requirement that descriptive information concerning trailers be encoded in the second section of the VIN. The TTMA believes that this information will be of little use in defect and noncompliance recall campaigns. Further, the TTMA asked for specific examples of how this information would be useful in accident investigation. By deleting this requirement, the TTMA argues, the second section of a trailer VIN could consist of "0" or some other "neutral" character, thus reducing paperwork requirements and easing compliance for the smaller manufacturers.

The TTMA petition is denied. Trailers can be as different as a five foot, single axle, 500 pound GVWR platform trailer and a forty foot,

multi-axle, refrigerated van of 40,000 pounds GVWR. The need to discriminate between these vehicles in accident investigation and research is apparent.

However, it should also be noted that the standard does not require that each character of the second section of the VIN reflect information, only that the second section as a whole reflect the required information. For example, if a small manufacturer produces 33 or less models which can be differentiated on the basis of the descriptive characteristics set forth in the standard, only one position in the second section of the VIN is needed to carry this information and the other four positions can be "0".

#### VIN Litigation

On January 8, 1979, the VESC and the State of Maryland filed with the U.S. Court of Appeals for the Fourth Circuit a petition for review of Standard No. 115. As required under Section 105 of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1394), the agency has filed with the Court the record of the rulemaking proceeding prior to this amendment. To facilitate public review of the material which the agency included in the record, publicly available documents not previously submitted to the docket but cited in the rulemaking notices have been placed in a general reference section for this notice.

The principal authors of this notice are Nelson Erickson of the Office of Vehicle Safety Standards, Crash Avoidance Division and Frederic Schwartz, Jr., of the Office of Chief Counsel.

In consideration of the foregoing, Standard No. 115, 49 CFR 571.115, is revised . . . .

(Secs. 106, 112, 119 Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1407); delegation of authority at 49 CFR 1.50.)

Issued on March 15, 1979.

Joan Claybrook  
Administrator

44 F.R. 17489-17498  
March 22, 1979



## MOTOR VEHICLE SAFETY STANDARD NO. 115

### Vehicle Identification Number—Passenger Cars

#### S1. Purpose and scope.

This standard specifies requirements for a vehicle identification system to simplify vehicle information retrieval and to reduce the incidence of accidents by increasing the accuracy and efficiency of vehicle defect recall campaigns.

#### S2. Application.

This standard applies to passenger cars, multipurpose passenger vehicles, trucks, buses, trailers, and motorcycles.

#### S3. Definitions.

“Body type” means the general configuration or shape of a vehicle distinguished by such characteristics as the number of doors or windows, cargo-carrying features, and the roofline (e.g., sedan, fastback, hatchback).

“Check digit” means a single number or the letter X used to verify the accuracy of the transcription of the vehicle identification number.

“Engine type” means a power source with specifically defined characteristics such as fuel utilized, number of cylinders, displacement, manufacturer, and horsepower.

“Line” means a name which a manufacturer applies to a family of vehicles within a make which have a degree of commonality in construction, such as body, chassis or cab type.

“Make” means a name which a manufacturer applies to a group of vehicles.

“Manufacturer” means the entity responsibility for affixing the vehicle’s certification label.

“Model” means the term applied to a family of vehicles of the same type, make, line, series, and body type.

“Model year” means the year used to designate a discrete vehicle model irrespective of the calendar year in which the vehicle was actually produced, so long as the actual period is less than two years.

“Plant of manufacture” means the plant where the completed vehicle is assembled.

“Series” means a name which a manufacturer applies to a subdivision of a “line” denoting price, size, or weight identification, and which is utilized by the manufacturer for marketing purposes.

“Type” means a class of vehicle distinguished by common traits, including design and purpose. Passenger cars, multipurpose passenger vehicles, trucks, buses, trailers, and motorcycles are separate types.

“Vehicle identification number” means a series of arabic numbers and roman letters which is assigned to a motor vehicle for identification purposes.

#### S4. Requirements.

**S4.1** Each vehicle shall have a vehicle identification number that is assigned by the manufacturer and a check digit which meet the requirements of this standard.

**S4.2** The vehicle identification numbers of any two vehicles manufactured within a 30-year period shall not be identical.

**S4.3** The vehicle identification number and check digit of each vehicle shall appear clearly and indelibly upon either a part of the vehicle other than the glazing that is not designed to be removed except for repair or upon a separate plate or label which is permanently affixed to such a part.

**S4.3.1** The type face utilized for the vehicle identification number and check digit shall consist of capital, sans serif characters and shall appear on a contrasting background. Each character shall have a minimum height of 4 mm.

**S4.4** The vehicle identification number and check digit for passenger cars and trucks of 10,000 pounds or less GVWR shall be located inside the passenger compartment. They shall be readable, without moving any part of the vehicle, through the vehicle glazing under daylight lighting conditions by an observer having 20/20 vision (Snellen) whose eye-point is located outside the vehicle adjacent to the left windshield pillar.

**S4.5 VIN basic content.** The VIN shall consist of three sections of characters and shall be grouped accordingly.

**S4.5.1** The first section shall consist of three characters which uniquely identify the manufacturer, make, and type of the motor vehicle if its manufacturer produces 500 or more motor vehicles of its type annually. If the manufacturer produces less than 500 motor vehicles of its type annually, the first and second characters may be determined by the manufacturer, the third character shall be the number 9, and the manufacturer, make, and type of the motor vehicle shall be identified in accordance with S4.5.3.3.

**S4.5.2** The second section shall consist of five characters which shall uniquely identify the attributes of the vehicle as specified in Table 1. The characters utilized and their placement within the section may be determined by the manufacturer, but the specified attributes must be decipherable with information supplied by the manufacturer under S6. In submitting data to the NHTSA relating to the gross vehicle weight rating, the following designations shall be utilized. No designations are specified for the VIN.

- A: Not greater than 1,000 pounds
- B: 1,000 pounds–1,500 pounds
- C: 1,500 pounds–2,000 pounds
- D: 2,000 pounds–2,500 pounds
- E: 2,500 pounds–3,000 pounds
- F: 3,000 pounds–3,500 pounds
- G: 3,500 pounds–4,000 pounds

- H: 4,000 pounds–4,500 pounds
- I: 4,500 pounds–5,000 pounds
- J: 5,000 pounds–5,500 pounds
- K: 5,500 pounds–6,000 pounds
- L: 6,000 pounds–6,500 pounds
- M: 6,500 pounds–7,000 pounds
- N: 7,000 pounds–7,500 pounds
- O: 7,500 pounds–8,000 pounds
- P: 8,000 pounds–8,500 pounds
- Q: 8,500 pounds–9,000 pounds
- R: 9,000 pounds–9,500 pounds
- S: 9,500 pounds–10,000 pounds
- T: Over 10,000 pounds

*Table 1*

<i>Type of Vehicle</i>	<i>Information Decipherable</i>
Passenger Car	line, series, body type, engine type, gross vehicle weight rating, and restraint system type.
Multipurpose passenger vehicle	line, series, body type, engine type, and gross vehicle weight rating.
Truck	model or line, series, chassis, cab type, engine type, brake system, and gross vehicle weight rating.
Bus	model or line, series, body type, engine type, and brake system.
Trailer	type of trailer, series, body type, length, and axle configuration.
Motorcycle	type of motorcycle, line, and brake horsepower.

The incomplete manufacturer(s) of any vehicle completed by a final stage manufacturer as defined in Part 567 of this title shall also be decipherable.

**S4.5.3** The third section shall consist of eight characters, of which the fifth through the eighth shall be numerical.

**S4.5.3.1** The first character of the third section shall represent the vehicle model year. The year shall be designated as indicated in Table II.

Table II

Year	Code	Year	Code	Year	Code
1980	A	1991	M	2002	2
1981	B	1992	N	2003	3
1982	C	1993	P	2004	4
1983	D	1994	R	2005	5
1984	E	1995	S	2006	6
1985	F	1996	T	2007	7
1986	G	1997	V	2008	8
1987	H	1998	W	2009	9
1988	J	1999	X	2010	A
1989	K	2000	Y	2011	B
1990	L	2001	1	2012	C

**S4.5.3.2** The second character of the third section shall represent the plant of manufacture.

**S4.5.3.3.** The third through the eighth characters of the third section shall represent the production sequence number of the motor vehicle if its manufacturer produces 500 or more vehicles of its type annually. If the manufacturer produces less than 500 motor vehicles of its type annually, the third, fourth, and fifth characters of the third section, combined with the three characters of the first section, shall uniquely identify the manufacturer, make, and type of the motor vehicle and the sixth, seventh, and eighth character of the third section shall represent the production sequence number of the motor vehicle.

#### S4.6 Characters.

Each character used in a vehicle identification number shall be one of the arabic numbers or roman letters set forth in Table III.

Table III

numbers: 1 2 3 4 5 6 7 8 9 0

letters: A B C D E F G H I J K L M N P R S  
T U V W X Y Z

All spaces provided for in the vehicle identification number must be occupied by a character specified in Table III.

#### S5. Check Digit.

**S5.1** A check digit shall be provided with each vehicle identification number. The check

digit shall immediately follow the fifth character of the second section and appear on any transfer documents containing the vehicle identification number and prepared by the manufacturer to be given to the first owner for purposes other than resale.

**S5.3** The check digit is determined by carrying out the mathematical computation specified in S5.3.1-S5.3.4.

**S5.3.1** Assign to each number in the vehicle identification number its actual mathematical value and assign to each letter the value specified for it in Table IV:

Table IV

A=1	J=9	T=8
B=2	K=1	U=9
C=3	L=2	V=1
D=4	M=3	W=2
E=5	N=4	X=3
F=6	P=5	Y=4
G=7	R=6	Z=5
H=8	S=7	

**S5.3.2** Multiply the assigned value of each character in the vehicle identification number by the weight factor specified for it in Table V. Multiply the check digit by 0.

Table V

Character	Weight Factor
1st.	8
2nd.	7
3rd.	6
4th.	5
5th.	4
6th.	3
7th.	2
8th.	10
9th. (Check Digit)	0
10th.	9
11th.	8
12th.	7
13th.	6
14th.	5
15th.	4
16th.	3
17th.	2

**S5.3.3** Add the resulting products and divide the total by 11.

**S5.3.4** The remainder is the check digit. If the remainder is 10, the check digit is X.

*Example:*

Vehicle Identification Number Character

1 G 4 A H E 9 H 4 5 G 1 1 8 3 4 1

Assigned Value

1 7 4 1 8 5 9 8 5 7 1 1 8 3 4 1

Multiply by Weight Factor

8 7 6 5 4 3 2 10 0 9 8 7 6 5 4 3 2

Add Products  $8 + 49 + 24 + 5 + 32 + 15 + 18 + 80 + 0 + 45 + 56 + 7 + 6 + 40 + 12 + 12 + 2 = 411$

Divide by 11  $411/11 = 37 \text{ R } 4/11$

Check Digit 4 (compare to character in 9th position)

the unique identifier for each make and class of vehicle it manufactures at least 30 days before affixing the first vehicle identification number. Manufacturers whose unique identifier appears in the third section of the vehicle identification number shall also submit the three characters of the first section which constitute a part of their identifier.

**S6.3** Each manufacturer shall submit at least 60 days before affixing the first VIN which meets the requirements of this standard the information necessary to decipher the characters contained in the second section of its vehicle identification numbers as required by S4.5.2. Any amendments to this information shall be submitted at least 60 days before affixing a vehicle identification number utilizing an amended coding.

**S6.4** Information required to be submitted under this section shall be addressed to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, D.C. 20590, Attention: VIN Coordinator.

## **S6. Reporting Requirements.**

**S6.1** Manufacturers of motor vehicles subject to this standard shall submit, either directly or through an agent, the unique identifier for each make and class of vehicle it manufactures by January 1, 1979.

**S6.2** Manufacturers which begin production of motor vehicles subsequent to January 1, 1979, shall submit, either directly or through an agent,

**43 F.R. 36452**  
**August 17, 1978**



# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116

## Motor Vehicle Brake Fluids

(Docket No. 70-23; Notice 3)

This notice amends § 571.21 of Title 49, Code of Federal Regulations, Motor Vehicle Safety Standard No. 116, *Motor Vehicle Brake Fluids*, to establish new performance requirements for brake fluid, and to extend its application to all motor vehicles equipped with hydraulic brake systems, and to all brake fluid for use in hydraulic brake systems of motor vehicles. The amendment also establishes requirements for brake fluid containers and labeling of containers.

A notice of proposed amendment to Federal Motor Vehicle Safety Standard No. 116 was published on September 30, 1970 (35 F.R. 15229). Interested persons have been afforded an opportunity to participate in the rulemaking process and their comments have been carefully considered.

The amendment adopts requirements that were proposed for grades DOT 3 and DOT 4 brake fluid, eliminates SAE Type 70R1 brake fluid, specifies more stringent requirements for physical and chemical properties, specifies the use of SAE SBR wheel cylinder cups in testing, and sets forth requirements for brake fluid containers and brake fluid container labeling.

Comments and available data indicated that the proposed DOT 2 type brake fluid is not a commercially available fluid but is manufactured primarily for military use in Arctic regions and that there is no current need for this additional grade of brake fluid. DOT 2 brake fluid has therefore been excluded from the amendment.

Requirements for DOT 3 and DOT 4 grade fluids are adopted as proposed, with a minor modification in the wet boiling point of the DOT 4 grade fluid. The NHTSA has determined that there is a need for two grades of brake fluid until an all-weather fluid is developed with viscosity and boiling point characteristics suit-

able for use in all braking systems. In order to provide an added margin of protection against vapor locking in severe braking service, some car manufacturers may wish to recommend use of a DOT 4 fluid for certain severe conditions. Such recommendations should point out that use of the DOT 4 fluid for improved resistance to vapor locking may result in poorer system performance in very cold weather.

The wet equilibrium reflux boiling point test procedure has been adopted as it represents a measure of the capability of the fluid in service. Tests have been run and data accumulated which demonstrate that this test is sufficiently repeatable to justify its inclusion. However, when sufficient data become available on methods of measuring resistance to vapor lock, this agency may consider proposing a new test procedure.

The proposed low temperature viscosity requirements for the DOT 3 and DOT 4 grade fluids have been adopted unchanged. Adequate data exist to support the need for the specified kinematic viscosities at low temperatures to assure adequate brake system performance in cold weather. Since high boiling points are sacrificed for low viscosities at low temperatures, the differences in kinematic viscosities between DOT 3 and DOT 4 grade fluids are justifiable.

The flash point test proposal has not been adopted because comments indicated that the test is not pertinent to in-use performance characteristics. The NHTSA, however, may re-examine the potential flammability hazard posed by motor vehicle brake fluids at a later date, particularly in the event that central hydraulic systems are introduced.

Brake fluid containers with a capacity of six ounces or more must be provided with a reseal-

able closure to reduce the likelihood of contamination after the initial opening.

The labeling requirements as adopted do not require, in all instances, that the manufacturer's name be placed upon the container. Many comments indicated that the manufacturer cannot be held responsible for the quality of a fluid once it has been transferred to a packager who may contaminate or alter the fluid, and the NHTSA concurs. However, the manufacturer, when he is not the packager, will be required to certify compliance to the packager. The packager will be required to state the name of the manufacturer and the distributor on the container label, either directly or in code. He will be required also to affix a number identifying the packaged lot and date of packaging. It is expected that packagers will keep records sufficient to provide the NHTSA with all identifying information when such is requested. The safety warnings have been reworded to avoid misinterpretations.

Several comments indicated that the proposed effective date of October 1, 1971 would place a hardship on packagers who deal solely in the aftermarket, alleging that lithographed cans must be purchased in quantity. Accordingly, an effective date of March 1, 1972, has been adopted to offer sufficient lead time to insure that all motor vehicle brake fluids manufactured on and after that date will be packaged in containers which meet requirements also effective March 1, 1972.

Petroleum-based fluids are no longer exempted from meeting the requirement of this standard. However, the NHTSA realizes that some manufacturers wish to use these fluids in central power systems and is issuing today an advance notice of proposed rulemaking requesting comments for a suitable performance standard for petroleum-based fluids (Docket No. 71-13; 36 F.R. 12032).

Test procedures adopted are, in general, similar to current ASTM Methods, with SAE

Standards J1702b and J1703b as reference sources. ASTM Methods consulted in developing the test procedures include: E 298-68 "Assay of Organic Peroxides," D 1120-65 "Boiling Point of Engine Antifreezes," D 1121-67 "Reserve Alkalinity of Engine Antifreezes and Antitrusts," D 2240-68 "Indentation Hardness of Rubber and Plastics by Means of a Durometer," D 344-39 "Relative Dry Hiding Power of Paints," D 97-66 "Pour Point," D 1415-68 "International Hardness of Vulcanized Natural and Synthetic Rubbers," E 1-68 "ASTM Thermometers," E 77-66 "Verification and Calibration of Liquid-In-Glass Thermometers," D 2515-66 "Kinematic Glass Viscometers," E 70-68 "pH of Aqueous Solutions with the Glass Electrode," E 29-67 "Indicating Which Places of Figures are to be Considered Significant in Specified Limiting Values," D 1123-59 "Water in Concentrated Engine Antifreezes by the Iodine Reagent Method," D 445-65 "Viscosity of Transparent and Opaque Liquids (Kinematic and Dynamic Viscosities)," D 91-61 "Precipitation Number of Lubricating Oils," and E 96-66 "Water Vapor Transmission of Materials in Sheet Form." SAE Referee Materials (SAE RM) used in testing may be obtained from the Society of Automotive Engineers, Inc., Two Pennsylvania Plaza, New York, N.Y. 10001.

Effective date: March 1, 1972.

In consideration of the foregoing, 49 CFR 571.21, Federal Motor Vehicle Safety Standard No. 116, *Motor Vehicle Brake Fluids*, is amended.  
...

Issued on June 16, 1971.

Douglas W. Toms  
Acting Administrator

36 F.R. 11987  
June 24, 1971

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116

## Motor Vehicle Brake Fluids

(Docket No. 70-23; Notice 4)

Motor Vehicle Safety Standard No. 116, establishing requirements for motor vehicle brake fluids and containers was amended on June 24, 1971 (36 F.R. 11987). Corrections were published on August 11, 1971 (36 F.R. 14742) and August 17, 1971 (36 F.R. 15534). Pursuant to 49 CFR 553.35 (35 F.R. 5119) petitions for reconsideration of the amendment were filed by Automotive Parts and Accessories Association, Inc., Citroen S.A., General Motors Corporation, R. M. Hollingshead Corporation, Union Carbide Corporation, and Wagner Electric Corporation. Subsequently, requests for rulemaking were received from Gold Eagle Products Co., and Union Carbide.

In response to information contained in several of the petitions, and to data recently available to the Administrator, the standard is being amended. The Administrator has declined to grant requested relief from other requirements of the standard.

1. *Deletion of grade DOT 4 fluid.* Wagner Electric petitioned for the deletion of grade DOT 4 fluid, and the adoption of a single minimum standard with the viscosity requirements of grade DOT 4 and the boiling point characteristics of grade DOT 3.

As the Administration noted in the June 24 amendment to Standard No. 116, "there is a need for two grades of brake fluid until an all-weather fluid is developed with viscosity and boiling point characteristics suitable for use in all braking systems." Temperatures of fluids in use in Western mountain driving have reached 295°F., and the Administration deems it essential to retain the DOT 4 fluid, with its minimum wet equilibrium reflux boiling point (ERBP) of 311°F. Accordingly, Wagner's petition is denied.

2. *Deletion or modification of wet ERBP requirements.* Wagner, Union Carbide, and Hollingshead petitioned for the deletion of the wet ERBP requirements on the grounds that the test procedure is not sufficiently reproducible, and that vapor lock temperature is a more appropriate factor to use for determination of operational characteristics of a brake fluid.

The wet ERBP test is based primarily upon the SAE test for determination of the as received boiling point of brake fluid, a test that has been used by industry for years. The major problems in determining water content have been resolved. While the wet ERBP test procedure does not measure actual vapor lock temperature, which is often substantially below that of the wet boiling point, it provides a basis for measuring the in-service capacity of the fluid to resist vapor lock. The petitions are denied.

3. *Petroleum-based and silicone-based fluids.* Standard No. 116 as in effect until March 1, 1972, specifically excludes petroleum-based fluids from its applicability. The amendment of June 24, however, applies to "all brake fluid for use in hydraulic brake systems of motor vehicles," and effectively prohibits the manufacture of petroleum-based and silicone-based fluids whose performance characteristics differ from conventional brake fluids. Although we have asked for comments on appropriate performance requirements for non-hygroscopic fluids (Docket No. 71-13, Notice 1, 36 F.R. 12032), to be incorporated into a standard with a proposed effective date of January 1, 1973, there will be, at a minimum, a 10-month period during which manufacture of these fluids is effectively prohibited. General Motors and Citroen have asked us to reconsider this point, the latter stating that all its vehicles

use a petroleum-based fluid, and that its sales in the U.S. will be effectively curtailed during the hiatus between the two standards.

In the absence of a demonstrable safety problem concerning the use of petroleum-based and silicone-based fluids, the petitions are deemed to have merit and Standard No. 116 is being amended to exclude these fluids from its ambit. We urge manufacturers, however, to take precautions to assure that adverse cross-contamination with hygroscopic fluids does not occur in the absence of appropriate regulations intended to eliminate this hazard.

4. *Labeling requirements.* Automotive Parts and Accessories, General Motors, Hollingshead, Union Carbide, and Wagner Electric petitioned for reconsideration of various portions of the labeling requirements. Gold Eagle also apprised us of problems with labeling requirements.

The petitioners have brought to our attention that packagers may use more than one manufacturer as a source for brake fluid packaged under a single brand name, and that under the present regulation requiring manufacturer identification on the can, packagers will either have to stock duplicate cans or purchase from one source. We initially considered manufacturer identification to be necessary in the event of brake fluid defect notification campaigns. However, it has been determined that the serial number identifying the packaged lot and date of packaging will be sufficient for the packager to identify the manufacturer of any defective fluid, and paragraph S5.2.2.2(b) is being amended to delete manufacturer identification. In response to requests for alternate location of the serial number, S5.2.2.2(d) is being amended to allow the number to be placed below the information by S5.2.2.2(c). An alternate location has also been specified for the information required by S5.2.2.2(b) if it is in code form.

Two petitioners voiced the fear that the safety warning of paragraph S5.2.2.2(g)(1), to follow the vehicle manufacturer's recommendations in adding brake fluid, might result in the promotion by automobile dealers of specified brand names, possibly creating an unfair trade practice. The agency views this possibility as unrelated to motor vehicle safety since presumably all brake

fluid will conform to Standard No. 116. In any event, a change of wording cannot eliminate this possibility, and the petitions are denied.

Petitions were also received requesting that the safety warnings against refilling containers (S5.2.2.2(g)(4)) not apply to storage containers with a capacity in excess of 5 gallons, since containers (30 and 50 gallon sizes, tank cars, etc.) differ from retail sale size cans and are reused for shipping purposes after cleaning. These petitions are granted and S5.2.2.2(g)(4) is being amended accordingly.

5. *Applicability to motor vehicles.* Union Carbide asked whether brake fluid in a vehicle must meet the requirements of Standard No. 116 when the vehicle is sold, pointing out that in extreme cases as long as a year may pass between its manufacture and sale. The NHTSA recognizes that original dry boiling points and viscosity of brake fluid may degrade due to the permeability of the brake system when a vehicle is exposed to the atmosphere over a period of time prior to its first sale for purposes other than resale, and that it is impracticable to require that brake fluid meet Standard No. 116 at time of sale when the "container" is a motor vehicle. Therefore, the standard is being amended so that the main portion applies only to brake fluid, with an added requirement applicable to motor vehicles, that they be equipped either with brake fluid manufactured and packaged in conformity with Standard No. 116, or with petroleum-based or silicone-based brake fluid (new paragraph S5.3).

6. *Resistance to oxidation: preparation.* An amendment to paragraph S6.11.4(b) specifies that the oxidation resistance test is to be conducted not later than 24 hours after the test mixture has been removed from the oven.

7. *Effect on SBR cups: procedure and calculation.* The SAE has also proposed a reduction of the time that the cups and fluid are exposed to oven heat at 70°C. The NHTSA is amending S6.12.4 to reduce exposure time to  $70 \pm 2$  hours, as it has been found that virtually all rubber swell occurs at this temperature during the first 48 hours.

The SAE has also concluded that cups should be retested and remeasured when the base diameters of the tested cups differ by more than

0.10 mm. This agency has determined that averaging four values as the change in base diameter, when a spread greater than 0.10 mm occurs, will result in a more precise determination of whether the requirements of paragraph S5.1.12(a) have been met, and is amending paragraph S6.12.5(a) appropriately.

8. *Typographical errors.* An erroneous standard barometric pressure figure of 750 mm appeared in the subscript of Table III and is being corrected to 760 mm. SAE Standard J1703a, referred to in S7.6, is corrected to read "J1703b."

9. *Interpretations.* Several petitions evidenced confusion over whether sale of fluids manufactured prior to March 1, 1972, will be allowed after that date. Sale of such fluids is permissible on and after March 1, 1972, until supplies are exhausted, with the legal requirement that they conform at time of sale to Standard No. 116 as in effect prior to March 1, 1972.

The agency was also asked whether name of city and zip code is acceptable as the complete mailing address of the distributor, required by paragraph S5.2.2.2(c). A mailing address is considered complete only if it is sufficient for the delivery of mail by the U.S. Postal Service, and containers must be marked accordingly.

Several petitioners asked for a delay to July 1, 1972, of various portions of the labeling requirements of paragraph S5.2.2.2 because of the logistics involved in modifying, in one instance, as many as ninety different labels. A delay in the effective date has not been found to be in the public interest, and the petitions on this point are denied. Gummed labels meeting the requirements of S5.2.2.2, however, may be affixed to these cans until new cans are available.

Finally, several petitioners requested clarification of the container sealing terminology in paragraph S5.2.1. The "inner seal" is the cap liner. Examples of "tamper-proof features" are devices such as a metal insert in the neck of the container, a plastic over-wrap, or a twist-off aluminum cap with a breakaway portion.

In consideration of the foregoing, Motor Vehicle Safety Standard No. 116 in 49 CFR 571.21 is revised. . . .

*Effective date:* March 1, 1972.

Issued on November 8, 1971.

Charles H. Hartman  
Acting Administrator

**36 F.R. 21594**  
**November 11, 1971**



**PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116****Motor Vehicle Brake Fluids****(Docket No. 70-23; Notice 5)**

The purpose of this notice is to amend 49 CFR § 571.116, Motor Vehicle Safety Standard No. 116, *Hydraulic Brake Fluids*, to permit certain required information to be placed on any permanent part of brake fluid containers.

Paragraphs S5.2.2.2(b) and S5.2.2.2(d) specify respectively that the name of the packager of the brake fluid, if in code form, and a serial number identifying the packaged lot and date of packaging shall be placed either beneath the distributor's name and mailing address, or on the bottom of the container. Gold Eagle Products Co. has asked if it is permissible to place the information required by S5.2.2.2(b) on the top of square gallon brake fluid containers. Such location is not presently allowed. The Administration, however, has concluded that manufacturers should not be restricted in their choice of location and that if it is more convenient for them to place the required information on the side or top of a container they should be allowed to do so, provided that the information is on a permanent part of the container. Accordingly, the

NHTSA is amending the requirements to allow all required certification, marking and labeling information to be placed in any location except on a removable part such as a lid.

In consideration of the foregoing, paragraph S5.2.2.2 of 49 CFR § 571.116, Motor Vehicle Safety Standard No. 116, is revised in part . . .

*Effective date:* August 29, 1972. Because the amendment relaxes an existing requirement and creates no additional burden, it is found for good cause shown that an effective date earlier than 180 days after issuance is in public interest.

This notice is issued under the authority of sections 103, 112, and 119 of the National Traffic and Motor Vehicle Traffic Safety Act of 1966 (15 USC 1392, 1401, and 1407) and the delegation of authority at 49 CFR 1.51.

Issued on August 22, 1972.

Douglas W. Toms  
Administrator

**37 F.R. 17474**  
**August 29, 1972**





# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116

## Motor Vehicle Brake Fluids

(Docket No. 71-13; Notice 3)

This notice amends Motor Vehicle Safety Standard No. 116, *Motor Vehicle Brake Fluids*, 49 CFR § 571.116, to establish container labeling requirements for those fluids that are currently unregulated by the standard. The requirements are effective July 1, 1973.

The amendment is based upon a notice published March 22, 1972, (37 F.R. 5825). The NHTSA proposed labeling requirements for "central hydraulic system oil" and "silicone-based brake fluid", similar to requirements already in existence for conventional hydraulic brake fluids. The packager would be required to place his name on the container. His name could appear in code form. The packager would also be required to provide the complete name and mailing address of the distributor, a serial number identifying the packaged lot and date of packaging of the fluid, description of the contents, and certain safety warnings.

The comments received generally supported the proposal, and Standard No. 116 is being amended accordingly. The term "central hydraulic system oil" has not been adopted as some central hydraulic systems are designed for use of DOT brake fluids. Instead, the term "hydraulic system mineral oil" is adopted. It is defined as "a mineral-oil-based fluid designed primarily for use in motor vehicle brake systems in which none of the components contacting the fluid are SBR, EPDM, Neoprene, or natural rubber". Paragraphs S3, S5, S5.1, S5.2.2.1, and S5.2.2.2 are being amended in a manner that more clearly evidences the NHTSA's intent that Standard No. 116 applies to all fluid used as brake fluids, but that silicone-based brake fluids and hydraulic system mineral oil are currently

excepted from performance, container, and labeling requirements applicable to DOT fluids. A new S5.2.2.3 specifies the labeling requirements for packagers of silicone-based brake fluids and hydraulic system mineral oil, and these generally parallel those required of packagers of DOT fluids. Packagers of hydraulic system mineral oil must furnish the additional warning that the fluid is not compatible with the rubber components of brake systems designed for use with DOT brake fluids.

The amendment also differs from the proposal in reflecting the revision of Standard No. 116 of August 29, 1972 (37 F.R. 17474) that allows information to be placed on a container "in any location except on a removable part such as a lid." Minor changes have been made in the text of the warning on fluid storage so that it is identical with the warning required for DOT fluids.

In consideration of the foregoing, 49 CFR § 571.116, Motor Vehicle Safety Standard No. 116, is amended. . . .

*Effective date:* July 1, 1973. Because these amendments relate to labeling requirements that do not entail product redesign, an effective date less than 180 days after the issue date is found to be in the public interest.

(Secs. 103, 112, 119, Pub. L. 89-563, 80 Stat. 718, 15 U.S.C. 1392, 1401, 1407; delegation of authority at 49 CFR 1.51.)

Issued on: January 4, 1973.

Douglas W. Toms  
Administrator

38 F.R. 2981  
January 31, 1973



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116

## Motor Vehicle Brake Fluids

(Docket No. 71-13; Notice 4)

This notice responds to a petition for reconsideration of brake fluid container labeling requirements by amending 49 CFR § 571.116 in minor respects.

Motor Vehicle Safety Standard No. 116, *Motor Vehicle Brake Fluids*, was amended on January 31, 1973, (33 F.R. 2981) to establish container labeling requirements for those fluids that are currently unregulated by the standard. Thereafter, a petition for reconsideration of the amendment was filed by General Motors Corporation pursuant to 49 CFR § 553.35. In response to the petition minor amendments are made to the standard.

General Motors believes that the NHTSA has not clearly indicated which mineral oil used in vehicle hydraulic systems must meet Standard No. 116. Hydraulic system mineral oil has been defined in part as a fluid "designed primarily for use in motor vehicle brake systems . . ." GM asserts that it is not clear whether a fluid "for use in a central hydraulic system composed of the power brake boost and the power steering systems must be considered *primarily* as a brake system application or *primarily* as a power steering system application." GM believes that since the power brake system is an auxiliary system whose fluids operate in a different environment than those in the primary system the standard should not include hydraulic boost system mineral oils.

The NHTSA intends the definition of hydraulic system mineral oil to include fluids used in any type of brake system regardless of the configuration. This definition must include fluids used in any hydraulic brake boost unit whose design is such that when a component fails, the boost unit fluid enters the master cylinder reser-

voir, hence contaminating the entire brake system. Such fluid must meet the applicable requirements of Standard No. 116. Fluids for use in systems where a failure will not introduce them into the master cylinder reservoir are not covered by Standard No. 116. The word "primarily" is being deleted from the definition of hydraulic system mineral oil to remove any doubt on this point.

GM points out that the warning a mineral oil manufacturer is currently required to provide refers to the oil as "brake fluid," in the container warning statements specified by the standard. Since mineral oil is not compatible with conventional or silicone-based brake fluid, GM believes it essential that it not be referred to as "brake fluid". The NHTSA concurs and is granting GM's petition by amending the labeling requirements concerned.

In consideration of the foregoing, 49 CFR § 571.116 Motor Vehicle Safety Standard No. 116 is amended. . . .

*Effective Date:* July 1, 1973. Because these amendments relate to labeling requirements that do not entail product redesign, an effective date less than 180 days after the issue date is found to be in the public interest.

(Sec. 103, 112, 119, Pub. L. 89-563, 80 Stat 718, 15 USC 1392, 1401, 1407; Delegation of Authority at 38 F.R. 12147).

Issued on: May 11, 1973.

James E. Wilson  
Associate Administrator  
Traffic Safety Programs

38 F.R. 12922  
May 17, 1973



## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116

## Motor Vehicle Brake Fluids

(Docket No. 71-13; Notice 6)

This notice amends 49 CFR 571.116, Motor Vehicle Safety Standard No. 116, *Motor Vehicle Brake Fluids*, to specify performance requirements for a low-water-tolerance (DOT 5) grade brake fluid, effective October 1, 1974, and to require a color coding system for all brake fluids and hydraulic system mineral oils, effective May 1, 1975, to safeguard against intermixing of incompatible fluids.

A notice of proposed rulemaking on this subject was published on November 21, 1973 (38 F.R. 32142), and an opportunity afforded for comment. The notice proposed performance requirements for brake fluids of low water tolerance, which would include but not be limited to silicone-based brake fluids. The notice also proposed a minor revision in the test procedures for determining cloudiness and lack of clarity in all brake fluids. Finally, the NHTSA proposed color coding for brake fluids and their containers as an appropriate method to prevent any brake system contamination. As the amendments adopted are substantially similar to those proposed, interested persons may refer to the notice which contains a full discussion of the proposals and the NHTSA's rationale for them.

A substantial number of comments submitted in response objected to either the idea of requiring a color coding system or the actual colors proposed for the different grades of fluid. The NHTSA considers that a properly implemented color coding system of fluids, containers, and reservoirs is an appropriate method of preventing brake system contamination. However, it realizes that sufficient time must be allotted to effect an orderly changeover and, therefore, these requirements have a delayed effective date. Several commenters requested modifications to spe-

cific color coding requirements. Citroen asked that the color green be permitted as an optional alternative to red for identifying mineral oils, based on its established use of this color in central hydraulic systems since 1965. This request has been denied in the interest of uniformity to minimize the possibility of inadvertent mixing of incompatible fluids. Several manufacturers of conventional glycol-type fluids stated that corrosion inhibitors and antioxidants often impart a reddish brown or straw color to the completed fluid prohibiting compliance with the proposed color ranges. In view of this information, the color range for DOT 3 and DOT 4 fluids has been broadened to allow variations from clear to amber, except for the container border which must be yellow. Further, it has been determined that visual inspection for color compliance is adequate, and the proposed wavelength bands have been deleted.

The other main issue raised was the use of the term "low water tolerance" when referring to silicone based brake fluids. Many commenters felt that the phrase "water intolerant" would more accurately describe the silicone fluids in light of the fact that the water tolerance test for DOT 5 fluids does not demand the absorption or retention of a specified percentage of water. DOT 5 grade fluid, however, is not limited to silicone based brake fluids. The term "low water tolerance" is found to be the most satisfactory description for a range of fluids potentially meeting the DOT 5 requirements and which may vary in water tolerance from 0.01% to 3.0%.

Several commenters pointed out that the chemical stability test of S6.5.4 is not applicable to DOT 5 fluids. The NHTSA concurs, and finds that the elimination of a chemical stability re-

quirement for DOT 5 fluids will not significantly compromise safety. The standard has been amended accordingly.

The U.S. Army Chemical and Coating Laboratory and Bendix Corporation both submitted comments which requested that the low temperature viscosity requirement be established at a lower temperature, for instance  $-67^{\circ}$  F., or that the maximum viscosity at  $-40^{\circ}$  F. be set at 600 cSt. Both comments were constructive, one relating the operational characteristics of silicone fluids at temperatures of  $-67^{\circ}$  F. and below and the other relating the necessary operational properties for the proper functioning of anti-lock systems at low temperatures. They are outside the scope of the proposal, however, and the NHTSA will consider these matters in future rulemaking.

In consideration of the foregoing, 49 CFR 571.116, Motor Vehicle Safety Standard No. 116, *Motor Vehicle Brake Fluids*, is amended. . . .

*Effective date:* October 1, 1974, with certain requirements effective May 1, 1975, as noted therein. Brake fluid of the type regulated by this standard is presently prohibited by the regulations of several States, and evidently is not being produced and sold for commercial purposes. The effect of this amendment, therefore, is to permit what was previously prohibited, and an effective date earlier than 180 days from the date of issuance is found for good cause shown to be in the public interest.

(Secs. 103, 112, 119, Pub. L. 89-563, 80 Stat. 718; 15 U.S.C. 1392, 1401, 1427; delegation of authority at 49 CFR 1.51.)

Issued on August 16, 1974.

James B. Gregory  
Administrator

**39 F.R. 30353**  
**August 22, 1974**

## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116

## Motor Vehicle Brake Fluids

(Docket No. 71-13; Notice 8)

This notice partially responds to petitions for reconsideration of amendments to 49 CFR 571.116 Motor Vehicle Safety Standard No. 116, *Motor Vehicle Brake Fluids*, that were published in the *Federal Register* on August 22, 1974 (39 FR 30353, as corrected at 32759). The standard is further amended to delete the requirements that were to have become effective May 1, 1975 for brake fluid color and for a color border around safety warnings on brake fluid container labels.

Standard No. 116 requires effective May 1, 1975, that DOT 3 and DOT 4 fluids be clear to amber in color, DOT 5 be blue, and hydraulic system mineral oil be red. For Motor Company petitioned for a reconsideration of the color requirements, asking that DOT 5 be clear or silver. Officine Alfieri Maserati, S.A. Automobiles Citroen, and U.S. Technical Research Corporation have asked that the color of hydraulic system mineral oil be changed from red to green. Other petitioners requested a delay in the effective date for color coding. Obviously a change in the color of the fluid would require a corresponding change in the color of the borders on container labels.

Consideration of these and other arguments by petitioners have delayed a formal response to the amendments of August 22, 1974. If the NHTSA determines that a petition for change of fluid color has merit, it will propose the change, in

order to have the benefit of public comment, rather than amending the standard without notice. In the meantime, to alleviate the problems of manufacturers faced with the immediate need to order container labels, the NHTSA is amending the standard to delete the color requirements for fluid and container labeling. The deletion is only intended to be a temporary one, until the response to the petitions for reconsideration of the amendments of August 22, 1974 is published. A new effective date creating a leadtime of not less than 180 days will then be proposed.

In consideration of the foregoing 49 CFR 571.116 Motor Vehicle Safety Standard No. 116 is amended. . . .

*Effective date:* March 25, 1975. Because the amendment relieves a restriction and creates no additional burden, it is found for good cause shown that an effective date earlier than 180 days after issuance is in the public interest.

(Sec. 103, 112, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1427); delegation of authority at 49 CFR 1.51).

Issued on March 19, 1975.

James B. Gregory  
Administrator

40 F.R. 13219  
March 25, 1975





## PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116

## Motor Vehicle Brake Fluids

(Docket No. 71-13; Notice 9)

This notice further responds to petitions for reconsideration of amendments to 49 CFR 571.116, Motor Vehicle Safety Standard No. 116, *Motor Vehicle Brake Fluids*, that were published in the *Federal Register* on August 22, 1974 (39 FR 30353, as corrected at 39 FR 32739). A partial response deleting color coding requirements was published on March 25, 1975 (40 FR 13219). This notice amends the standard in minor respects.

Petitions were received from General Motors Corporation, Ford Motor Company, Wagner Electric Corporation, Officine Alfieri Maserati, S.A. Automobiles Citroen, and U.S. Technical Research Corporation. Late-filed petitions were received from EIS Automotive and the Bell Company and in accordance with 49 CFR 553.31 they have been treated as petitions for rulemaking. The issues raised by the petitions and their disposition are set forth below.

**Revocation.** Ford petitioned to revoke the amendments adding DOT 5 brake fluids, because "it has reason to believe that they are incompatible with at least some of the brake systems currently used on Ford vehicles." Specifically Ford argues that the fluids "may cause hazardous deterioration of brake systems or their components." In support Ford referenced a recent letter from Bendix to the Non-Conventional Brake Fluid Task Group of the Society of Automotive Engineers, describing a series of tests conducted with silicone brake fluid "in a hydrovac brake system typical of the system used in some Ford products." NHTSA has learned that Bendix subsequently informed SAE that the tests were erroneously reported and recommended further testing. This agency finds that good cause

has not been shown for the revocation, and Ford's petition is denied.

Ford also commented that DOT 5 fluid would not have sufficient electrical conductivity to permit the operation of its intended brake fluid level sensor to meet a requirement of Motor Vehicle Safety Standard No. 105-75 *Hydraulic Brake Systems*. The NHTSA regards this as a design problem, peculiar to Ford, that is outweighed by the safety advantages of allowing motor vehicle manufacturers and motorists the option of choosing a low-water-tolerant brake fluid. Ford's petition is denied.

**Fluid color.** A discussion of issues raised by the petitions for reconsideration of fluid color and labeling will be contained in a notice of proposed rulemaking on this subject to be published shortly. (Docket No. 71-13; Notice 10).

**Minor amendments.** An editorial error in the amendment to paragraph S5.1.5.2 published on September 11, 1974 (39 FR 32739) is corrected. Paragraph S5.2.2.3 is amended to remove superfluous references to "brake fluid." Paragraph S6.7.3(a) is amended to include a reference to isopropanol. Finally, to agree with a change made in S6.12.4 (39 FR 21599) S6.12.1 is corrected by changing a reference to "120 hours" to "70 hours."

In consideration of the foregoing 49 CFR 571.116 Motor Vehicle Safety Standard No. 116 is amended. . . .

**Effective date:** May 16, 1975. Because the amendments correct errors and create no additional burden on any person it is found for good cause shown that an immediate effective date is in the public interest.

**Effective: May 16, 1975**

(Sec. 103, 112, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1401, 1407); delegation of authority at 49 CFR 1.51).

Issued on May 12, 1975.

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James B. Gregory  
Administrator

**40 F.R. 21474**  
**May 16, 1975**

# PREAMBLE TO AMENDMENT TO MOTOR VEHICLE SAFETY STANDARD NO. 116

## Motor Vehicle Brake Fluids

(Docket No. 71-13; Notice 12)

This notice amends Standard No. 116, *Motor Vehicle Brake Fluids*, to specify color coding requirements for hydraulic brake system fluids, to alter the warnings required on labels, to include a definition for "brake fluid," and to revise the definition of "hydraulic system mineral oil."

These amendments are based on a proposal to amend Standard No. 116 (49 CFR 571.116) issued by the National Highway Traffic Safety Administration (NHTSA) on December 5, 1975 (40 FR 56928). Interested persons were afforded an opportunity to submit comments on the proposal by February 5, 1976, and due consideration has been given to the 15 comments received. The National Motor Vehicle Safety Advisory Council did not take a position on the proposed amendments.

As proposed, paragraphs S1 and S2 of Standard No. 116 are amended to substitute the word "fluid" for the term "brake fluid," since the standard now includes requirements for hydraulic system mineral oils which are not normally called "brake fluids." A definition of the term "brake fluid" is added to the standard in order to clarify the distinction between it and hydraulic system mineral oil.

With regard to the proposed definition of hydraulic system mineral oil, Citroen requested that polychloroprene rubber (CR) be deleted from the list of components designated as incompatible with the mineral oil. The NHTSA has determined that Citroen's comments have merit, since the type of CR used in brake hoses is compatible with hydraulic system mineral oils, unlike the SBR, EPR, and NR materials also listed in the proposed definition. This final rule reflects revision of the definition accordingly.

In addition to changes in the labeling requirements, the notice proposed color coding require-

ments for both fluids and their containers and closures. After reviewing the comments submitted in response to the proposed amendments, the NHTSA has decided not to adopt the proposed changes in labeling (with one exception) or the proposed color coding of containers and their closures. The NHTSA has concluded that color coding of the fluids, combined with the existing warnings on container labels, is a sufficient safeguard against failures in hydraulic braking systems that may result from the use of improper or contaminated fluids.

The proposed color coding of fluids was generally supported by the commenters, although there were requests for colors different than those specified in the proposal. Burma-Castrol requested that the NHTSA defer color coding of fluids until the International Standards Organization (ISO) establishes standard colors for all motor vehicle fluids. This request is denied since the ISO is not actively developing a color code, and there is no indication that it will issue such a code at any time in the near future. The NHTSA can act immediately to reduce the potential safety hazards created by the use of improper fluids in hydraulic braking systems.

Alfred Teves GMBH requested that the color requirement for DOT 3 and DOT 4 brake fluids be blue instead of the proposed "colorless to amber," in order to distinguish these fluids from motor oil and antifreeze. This request is denied since there are many windshield cleaning solutions and some antifreeze fluids that are blue, and because most domestic brake fluids are currently "colorless to amber."

Volkswagen also requested that DOT 3 and DOT 4 brake fluids be blue in order to assure visibility of the fluids in translucent master cylinder reservoirs. The NHTSA does not con-

sider visibility in master cylinders to be a problem since clear or amber fluids would be visible initially in most cases, or would soon become so, because brake fluids generally darken rapidly with use. The major purpose of the color coding requirements is to permit easy identification of fluids before they are placed in the vehicle, in order to prevent the mixing of an incompatible fluid in a braking system. Volkswagen pointed out that if amber or yellow fluids are mixed with the blue fluids that are currently in many master cylinder reservoirs, the resulting green colored fluid might be mistaken for a hydraulic system mineral oil (by this amendment, hydraulic system mineral oils are required to be green). The NHTSA does not consider this concern justification for a change in the proposed color because, as stated earlier, most brake fluids tend to become darker after they are in use for a short period.

Volkswagen suggested that hydraulic system mineral oils be required to be red in color instead of green to avoid any confusion with mixtures of existing brake fluids that would be green. The NHTSA rejects this suggestion in order to avoid confusion with the synthetic red fluids that must be used in some older brake systems. The addition of the wrong fluid to such vehicles could result in substantial damage to the brake system and potential brake failure.

The U.S. Army Mobility Equipment Research and Development Center requested that hydraulic system mineral oils be required to be colored red, consistent with the Army color code. The Center's comment cited examples of brake failure caused by the inadvertent mixing of incompatible fluids in hydromechanical systems. The NHTSA has determined, however, that inconsistency between the Army color code and the proposed color coding requirements for oils sold commercially should not create a safety problem. Only mineral oils procured specifically for use by the military would be colored red, because § 571.7(c) of NHTSA regulations (49 CFR 571.7(c)) provide that no standard applies to a vehicle or item of equipment manufactured for, and sold directly to, the Armed Forces of the United States in conformity with contractual specifications. If a situation arose in which it was necessary to buy commercial oil for a military vehicle, the oil

would be purchased according to label information.

The Brake System Parts Manufacturers Council (BSPMC) reiterated its previous comments to Docket No. 71-13, Notice 5, stating that requirements for color coding of fluids and containers would not enhance safety but would only increase cost. They commented that the matching of a fluid in a master cylinder reservoir by its color would be impossible after a few months since DOT 3 and DOT 4 fluids tend to darken rapidly and thereafter might not be distinguishable from incompatible green hydraulic system mineral oils. They further commented that because master cylinder reservoirs are not required to be color coded with the appropriate fluid, the inadvertent mixing of incompatible fluids would still continue to occur.

The NHTSA agrees that the matching of color coded fluids is difficult under certain conditions. However, the main purpose of the fluid color coding requirements is to enable users to distinguish among various unused brake fluids, rather than to match fluid in a master cylinder with additional fluid. It is particularly important to be able to distinguish fluids when they are in unmarked drums or pressure dispensing containers in garages.

Volkswagen requested that the NHTSA regulate the marketing of DOT 5 brake fluids to prevent their use in vehicles unsuited to DOT 5. Volkswagen takes issue with advertisements stating that DOT 5 fluids are suitable for all vehicles and that they can be mixed with all other types of brake fluids. It contended that DOT 5 fluids cause severe corrosion when added to brake systems containing DOT 3 fluids, and submitted a report of laboratory tests to substantiate this claim. Volkswagen recommended that DOT 5 fluids be excluded from regulation by Standard No. 116.

The request by Volkswagen is repetitious of a petition for reconsideration submitted by Ford Motor Company that was denied by a notice published May 16, 1975 (40 FR 21474). Ford petitioned to revoke the amendments that added DOT 5 brake fluids to the standard, because the fluids "may cause hazardous deterioration of brake systems or their components." The NHTSA

rejected Ford's petition on the basis that the information submitted did not substantiate the claim that DOT 5 fluids are deleterious to some brake systems. Likewise, the NHTSA does not consider the test reports submitted by Volkswagen adequate to simulate actual field use, and field testing in the United States and Panama has demonstrated that mixtures of DOT 5 and DOT 3 fluids do not accelerate corrosion.

It should be understood that the NHTSA considers the question of the compatibility of DOT 5 fluids with brake systems and other brake fluids to be a separate issue from the question whether DOT 5 fluids should be regulated by Standard No. 116. The fact that DOT 5 fluids might cause corrosion in certain systems does not mean that there should not be specified performance requirements for DOT 5 fluids in Standard 116. By its terms Standard No. 116 applies "to all fluid for use in hydraulic brake systems of motor vehicles."

Concerning Volkswagen's alternative request that the NHTSA regulate the marketing and use of DOT fluids, we assume that Volkswagen intended this to be accomplished by the use of additional warnings on the labels of DOT 5 brake fluid containers. Any such labeling changes will have to be dealt with in future rulemaking. Interested persons should submit additional data concerning the compatibility of DOT 5 with various brake systems and other brake fluids, along with any recommended label changes.

The notice proposing these amendments also specified requirements for the color coding of brake fluid containers. Bell Chemical Company, Brake System Parts Manufacturers Council, Gold Eagle and Wagner Corporation opposed the proposed color coded border around the printed warnings on brake fluid containers, on the basis that the color of the border would have no significance to the typical consumer. They commented that the proposed borders would cost approximately one million dollars for printing and that no tangible benefit would be realized. After considering these comments, the NHTSA has decided that the color coded borders should not be required on brake fluid containers. Likewise, the color coded cap requirement is not included in paragraph S5.2.2.4 as was proposed, although the proposed labeling requirement of

S5.2.2.5 is made final as S5.2.2.4. It specifies that the labeling requirements of the standard shall be placed on the protective outer container or carton of brake fluids whose inner container is not normally visible during use. Since the color-coded-border requirement is not adopted, the proposed paragraph S5.2.2.6 regarding color tolerance requirements is unnecessary and, therefore, is not included in the amendments.

Eight commenters opposed the proposed color coding requirements for container caps and closure devices. The commenters pointed out that consumers would not be cognizant of the significance of the colored caps, and that procurement of colored caps would result in high costs and require long lead times. It was also noted that the wrong color of cap could easily be inadvertently applied by packagers or switched by users of the brake fluids. Further, they stated that since service stations and shops often mount dispenser pumps on one gallon brake fluid cans in place of their original caps, the purpose of color coded caps would be thwarted in many instances. The NHTSA has concluded that these arguments have merit. The proposed requirements for color coded caps and closures are not included in the amendments.

The proposed labeling changes included specification of the minimum wet boiling point in degrees Celsius as well as Fahrenheit, container capacity in liters as well as gallons, and colored border width in millimeters as well as inches. Classic Chemical supported these proposed labeling changes. Wagner Electric and Bell Chemical opposed them on the basis that metric equivalents do not serve a safety need and should be left to the jurisdiction of the Federal agencies responsible for the "metrication" program.

The agency's authority extends to labeling with safety information, and all available methods to increase the comprehensibility of labeling, including metric equivalents, is justified. Nonetheless, the NHTSA has concluded that the cost of the proposed metric labeling does not justify a change at this time. The proposed changes in S5.2.2.1(c), S5.2.2.2(f) and S5.2.2.2(g)(4) are not adopted.

Classic Chemical objected to the proposed change in the last sentence of paragraph S5.2.1 regarding requirements for container sealing,

The rewording was proposed for the purpose of clarifying the requirement that the container closure be tamper-proof to the extent that it would be obvious to a user that the closure had been previously opened. Classic Chemical commented that the present wording which refers to inclusion of a "tamper proof feature" is preferable to the proposed wording. After reconsideration, the NHTSA has decided that the proposed rewording could result in confusion rather than clarification. Therefore, paragraph S5.2.1 is not amended as was proposed.

Dow Corning Corporation, a manufacturer of DOT 5, a low-water-tolerance silicone brake fluid, earlier suggested that the admonition in S5.2.2.2(g)(3) to keep containers "tightly closed to prevent absorption of moisture" is unnecessary and redundant when applied to water intolerant brake fluids such as DOT 5 fluids. Based on this suggestion, the notice proposing these amendments specified the amendment of S5.2.2.2(g)(3) to read, "... to prevent entry of water and other contaminants." Wagner Electric commented that the S5.2.2.2(g)(3) warning label on DOT 3 and DOT 4 containers should not be required to be changed simply because the label does not apply, as worded, to DOT 5 brake fluids. They noted that consumer cost could be greatly reduced if only the labels on DOT 5 fluids are changed. The NHTSA agrees with this suggestion. Paragraph S5.2.2.2(g)(3) is therefore modified to add the following parenthetical: "(The last five words of the second sentence may be omitted from the labeling on DOT 5 containers.)"

Bowes Seal Fast commented that the third warning listed in S5.2.2.2(g) ("Store Brake Fluid Only In Its Original Container . . .") is contrary to the general garage practice of using dispensing containers that are continuously refilled from bulk containers. Bell suggested that warning number (3) be eliminated on the basis that warning number (2) is adequate. The NHTSA considers the dispensing containers to be devices for use rather than for storage, so warning number (3) is not contrary to normal garage practices. The NHTSA disagrees with Bell since warning number (2) concerns contamination of fluids in master cylinders, while warning number (3) pertains to the storage of fluids.

The notice proposing these amendments specified a new consumer warning against accepting containers whose "tamper proof" seals have been broken. Wagner opposed the proposed warning. They noted that metal screw caps on fluid containers are often very tightly fastened, and that consumers could not remove them without pliers to inspect the inner "tamper proof" seal. The tendency would be, according to Wagner, to not inspect the inner seal at the place of purchase. The NHTSA has considered these comments and further evaluated the possible problems of the sale of brake fluid or hydraulic system mineral oil containers refilled with other than approved fluid. It has been determined that the potential safety problem does not warrant the expense of adding another warning of this type to either the container or its outer closure. The proposed new warning, S5.2.2.2(g)(5), is not adopted.

The notice preceding these amendments proposed the amendment of paragraph S6.7.3(a) to specify the phrase "suitable solvent" rather than the solvents presently listed, to be used to inhibit frosting of the exterior surfaces of specimen containers in the test for fluidity and appearance at low temperature. After reconsideration, the NHTSA has decided that this proposed change might only create confusion and should, therefore, not be adopted. This does not mean that manufacturers are restricted to the use of ethanol, isopropanol, or acetone. The obligation of a manufacturer is to ensure that its certification of compliance is not false or misleading in a material respect, and that it has exercised due care in manufacturing to conform to the requirements of Standard No. 116 (15 U.S.C. § 1397 (b)(2)). A manufacturer is not required to follow specifically the test procedures for the standards, but only to ascertain, in the exercise of due care, that its product will conform to the standard's requirements when it is tested by the stated methods.

The NHTSA has determined that these amendments will have a negligible economic impact. It is estimated that the color coding requirements will have an annual cost of approximately \$10,000. Because of residual inventories it should take several years before all brake fluids are color coded. After this phasing-in period it is estimated that the amendments will result in the

reducing of approximately 400 accidents per year, with an annual consumer cost savings of \$512,000. The NHTSA has determined that the amendments will have a negligible effect on the environment.

It has been determined that an effective date later than the normal statutory limit of one year is justified for these amendments in order to give manufacturers and packagers sufficient time to exhaust existing supplies of brake system fluids destined for new motor vehicles.

In consideration of the foregoing, Standard No. 116 (49 CFR 571.116) is amended. . . .

*Effective date:* September 1, 1978.

(Sec. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407); delegation of authority at 49 CFR 1.50.)

Issued on December 6, 1976.

John W. Snow  
Administrator

**41 F.R. 54942**  
**December 16, 1976**





## MOTOR VEHICLE SAFETY STANDARD NO. 116

### Motor Vehicle Brake Fluids—Passenger Cars, Multipurpose Passenger Vehicles, Trucks, Buses, and Motorcycles, and Brake Fluid and Brake Fluid Containers

#### (Docket No. 70-23; Notice 3)

**S1. Scope.** This standard specifies requirements for fluids for use in hydraulic brake systems of motor vehicles, containers for these fluids, and labeling of the containers.

**S2. Purpose.** The purpose of this standard is to reduce failures in the hydraulic braking systems of motor vehicles which may occur because of the manufacture or use of improper or contaminated fluid.

**S3. Application.** This standard applies to all fluid for use in hydraulic brake systems of motor vehicles. In addition, S5.3 applies to passenger cars, multipurpose passenger vehicles, trucks, buses, trailers, and motorcycles.

#### **S4. Definitions.**

“Blister” means a cavity or sac on the surface of a brake cup.

“Brake fluid” means a liquid designed for use in a motor vehicle hydraulic brake system in which it will contact elastomeric components made of styrene and butadiene rubber (SBR), ethylene and propylene rubber (EPR), polychloroprene (CR) brake hose inner tube stock or natural rubber (NR).

“Chipping” means a condition in which small pieces are missing from the outer surface of a brake cup.

“Hydraulic system mineral oil” means a mineral-oil-based fluid designed for use in motor vehicle hydraulic brake systems in which the fluid is not in contact with components made of SBR, EPR or NR.

“Duplicate samples” means 2 samples of brake fluid taken from a single packaged lot and tested simultaneously.

“Packager” means any person who fills containers with brake fluid that are subsequently distributed for retail sale.

“Packaged lot” is that quantity of brake fluid shipped by the manufacturer to the packager in a single container, or that quantity of brake fluid manufactured by a single plant run of 24 hours or less, through the same processing equipment and with no change in ingredients.

“Scuffing” means a visible erosion of a portion of the outer surface of a brake cup.

“Sloughing” means degradation of a brake cup as evidenced by the presence of carbon black loosely held on the brake cup surface, such that a visible black streak is produced when the cup, with a  $500 \pm 10$  gram dead weight on it, is drawn base down over a sheet of white bond paper placed on a firm flat surface.

“Stickiness” means a condition on the surface of a brake cup such that fibers will be pulled from a wad of U.S.P. absorbent cotton when it is drawn across the surface.

**S5. Requirements.** This section specifies performance requirements for DOT 3, DOT 4 and DOT 5 brake fluids, requirements for brake fluid certification, and for container sealing, labeling and color coding for both brake fluids and hydraulic system mineral oils. Where a range of tolerances is specified, the brake fluid must be capable of meeting the requirements at all points within the range.

**S5.1 Brake fluid.** When tested in accordance with S6, brake fluids shall meeting the following requirements.

**S5.1.1 Equilibrium reflux boiling point (ERBP).** When brake fluid is tested according to S6.1, the ERBP shall not be less than the following value for the grade indicated:

- (a) DOT 3:205° C. (401.°F.).
- (b) DOT 4:230° C. (446° F.).
- (c) DOT 5 :260° C. (500° F.).

**S5.1.2 Wet ERBP.** When brake fluid is tested according to S6.2, the wet ERBP shall not be less than the following value for the grade indicated:

- (a) DOT 3:140° C. (284 F.).
- (b) DOT 4: 155° C. (311° F.).
- (c) DOT 5:180° C. (356° F.).

**S5.1.3 Kinematic viscosities.** When brake fluid is tested according to S6.3, the kinematic viscosities in centistokes (cSt) at stated temperatures shall be neither less than 1.5 cSt at 100° C. (212° F.) no more than the following maximum value for the grade indicated:

- (a) DOT 3: 1500 cSt at minus 40° C. (minus 40° F.).
- (b) DOT 4: 1800 cSt at minus 40° C. (minus 40° F.).
- (c) DOT 5: 900 cSt at minus 40° C. (minus 40° F.).

**S5.1.4 pH value.**When DOT 3 or DOT 4 brake fluid is tested according to S6.4, the pH value shall not be less than 7.0 nor more than 11.5.

#### **S5.1.5 Brake fluid stability.**

**S5.1.5.1 High-temperature Stability.** When brake fluid is tested according to S6.5.3 the ERBP shall not change by more than 3.0° C. (5.4° F.) plus 0.05 degree for each degree that the ERBP of the fluid exceeds 225° C. (437° F.).

**S5.1.5.2 Chemical stability.** When DOT 3 or DOT 4 brake fluid is tested according to S6.5.4, the change in temperature of the refluxing fluid

mixture shall not exceed 3.0°C (5.4°F) plus 0.05 degree for each degree that the ERBP of the fluid exceeds 225°C (437°F).

**S5.1.6 Corrosion.** When brake fluid is tested according to S6.6—

(a) The metal test strips shall not show weight changes exceeding the limits stated in Table I.

<i>Test strip material</i>	<i>Max. permissible weight change, mg/sq cm of surface</i>
Steel, Tinned Iron, Cast Iron	0.2
Aluminum	0.1
Brass, Copper	0.4

(b) Excluding the area of contact ( $13 \pm 1$ mm. ( $\frac{1}{2} \pm \frac{1}{32}$  inch) measured from the bolt hole end of the test strip), the metal test strips shall not show pitting or etching to an extent discernible without magnification;

(c) The water-wet brake fluid at the end of the test shall show no jelling at  $23 \pm 5^{\circ}$  C. ( $73.4 \pm 9^{\circ}$  F.);

(d) No crystalline deposit shall form and adhere to either the glass jar walls or the surface of the metal strips:

(e) At the end of the test, sedimentation of the water-wet brake fluid shall not exceed 0.10 percent by volume;

(f) The pH value of water-wet DOT 3 and DOT 4 brake fluid at the end of the test shall not be less than 7.0 nor more than 11.5;

(g) The cups at the end of the test shall show no disintegration, as evidenced by blisters or sloughing;

(h) The hardness of the cup shall not decrease by more than 15 International Rubber Hardness Degrees (IRHD); and

(i) The base diameter of the cups shall not increase by more than 1.4 mm. (0.055 inch).

**S5.1.7 Fluidity and appearance at low temperature.** When brake fluid is tested according to S6.7, at the storage temperature and for the storage times given in Table II—

(a) The fluid shall show no sludging, sedimentation, crystallization, or stratification;

(b) Upon inversion of the sample bottle, the time required for the air bubble to travel to the top of the fluid shall not exceed the bubble flow times shown in Table II; and

(c) On warming to room temperature, the fluid shall resume the appearance and fluidity that it had before chilling:

<i>Storage temperature</i>	<i>Storage time (hours)</i>	<i>Max. bubble flow time (seconds)</i>
minus $40 \pm 2^\circ$ C. (minus $40 \pm 3.6^\circ$ F.)	$144 \pm 4.0$	10
minus $50 \pm 2^\circ$ C. (minus $58 \pm 3.6^\circ$ F.)	$6 \pm 0.2$	35

**S5.1.8 Evaporation.** When brake fluid is tested according to S6.8—

(a) The loss by evaporation shall not exceed 80 percent by weight;

(b) The residue from the brake fluid after evaporation shall contain no precipitate that remains gritty or abrasive when rubbed with the fingertip; and

(c) The residue shall have a pour point below minus  $5^\circ$  C. ( $+23^\circ$  F.).

#### **S5.1.9 Water tolerance.**

(a) *At low temperature.* When brake fluid is tested according to S6.9(a)—

(1) The fluid shall show no sludging, sedimentation, crystallization, or stratification;

(2) Upon inversion of the centrifuge tube, the air bubble shall travel to the top of the fluid in not more than 10 seconds;

(3) If cloudiness has developed, the wet fluid shall regain its original clarity and fluidity when warmed to room temperature; and

(b) *At  $60^\circ$  C. ( $140^\circ$  F.).* When brake fluid is tested according to S6.9(b)—

(1) The fluid shall show no stratification; and

(2) Sedimentation shall not exceed 0.15 percent by volume after centrifuging.

#### **S5.1.10 Compatibility.**

(a) *At low temperature.* When brake fluid is tested according to S6.10.3(a) the test specimen shall show no sludging, sedimentation, or crystallization. In addition DOT 3 and DOT 4 fluids shall show no stratification.

(b) *At  $60^\circ$  C. ( $140^\circ$  F.).* When brake fluid is tested according to S6.10.3(b)—

(1) Sedimentation shall not exceed 0.05 percent by volume after centrifuging; and

(2) DOT 3 and DOT 4 fluids shall show no stratification.

**S5.1.11 Resistance to oxidation.** When brake fluid is tested according to S6.11—

(a) The metal test strips outside the areas in contact with the tinfoil shall not show pitting or etching to an extent discernible without magnification;

(b) No more than a trace of gum shall be deposited on the test strips outside the areas in contact with the tinfoil;

(c) The aluminum strips shall not change in weight by more than 0.05 mg/sq cm; and

(d) The cast iron strips shall not change in weight by more than 0.3 mg/sq cm.

**S5.1.12 Effects on cups.** When brake cups are subjected to brake fluid in accordance with S6.12(a) and (b)—

(a) The increase in the diameter of the base of the cups shall be not less than 0.15 mm (0.006 inch) or more than 1.40 mm (0.055 inch);

(b) The decrease in hardness of the cups shall be not more than 10 IRHD at  $70^\circ$  C. ( $158^\circ$  F.) or more than 15 IRHD at  $120^\circ$  C. ( $248^\circ$  F.), and there shall be no increase in hardness of the cups; and

(c) The cups shall show no disintegration as evidenced by stickiness, blisters, or sloughing.

**S5.1.13 Stroking properties.** When brake fluid is tested according to S6.13—

(a) Metal parts of the test system shall show no pitting or etching to an extent discernible without magnification;

(b) The change in diameter of any cylinder or piston shall not exceed 0.13 mm (0.005 inch);

(c) The average decrease in hardness of nine of the ten cups tested (eight wheel cylinder and one master cylinder primary) shall not exceed 15 IRHD. Not more than one of the nine cups shall have a decrease in hardness greater than 17 IRHD;

(d) None of the ten cups shall be in an unsatisfactory operating condition as evidenced by stickiness, scuffing, blisters, cracking, chipping, or other change from its original appearance;

(e) None of the ten cups shall show an increase in base diameter greater than 0.90 mm (0.035 inch);

(f) The average lip diameter set of the ten cups shall not be greater than 65 percent;

(g) During any period of 24,000 strokes, the volume loss of fluid shall not exceed 36 milliliters;

(h) The cylinder pistons shall not freeze or function improperly throughout the test;

(i) The total loss of fluid during the 100 strokes at the end of the test shall not exceed 36 milliliters;

(j) The fluid at the end of the test shall show no formation of gels;

(k) At the end of the test the amount of sediment shall not exceed 1.5 percent by volume; and

(l) Brake cylinders shall be free of deposits that are abrasive or that cannot be removed when rubbed moderately with a nonabrasive cloth wetted with ethanol.

**S5.1.14 Fluid color.** Brake fluid and hydraulic system mineral oil manufactured on or after September 1, 1978, shall be of the color indicated:

DOT 3 and DOT 4—colorless to amber.

DOT 5—purple.

Hydraulic system mineral oil—green.

## **S5.2 Packaging and labeling requirements for motor vehicle brake fluids.**

**S5.2.1 Container sealing.** Each brake fluid or hydraulic system mineral oil container with a capacity of 6 fluid ounces or more shall be provided with a resealable closure that has an inner seal impervious to the packaged brake fluid. The container closure shall include a tamper-proof feature that will either be destroyed or substantially altered when the container closure is initially opened.

## **S5.2.2 Certification, marking, and labeling.**

**S5.2.2.1** Each manufacturer of a DOT grade brake fluid shall furnish to each packager, distributor, or dealer to whom he delivers brake fluid, the following information:

(a) A serial number identifying the production lot and the date of manufacture of the brake fluid.

(b) The grade (DOT 3, DOT 4, or DOT 5) of the brake fluid.

(c) The minimum wet boiling point in Fahrenheit of the brake fluid.

(d) Certification that the brake fluid conforms to Federal Motor Vehicle Safety Standard No. 116.

**S5.2.2.2** Each packager of a brake fluid shall furnish the following information clearly and indelibly marked on each brake fluid container, in any location except a removable part such as a lid.

(a) Certification that the brake fluid conforms to Federal Motor Vehicle Safety Standard No. 116.

(b) The name of the packager of the brake fluid, which may be in code form.

(c) The name and complete mailing address of the distributor.

(d) A serial number identifying the packaged lot and date of packaging.

(e) Designation of the contents as "DOT — — MOTOR VEHICLE BRAKE FLUID" (Fill in "3", "4", or "5" as applicable.)

(f) The minimum wet boiling point in Fahrenheit of the DOT brake fluid in the container.

(g) The following safety warnings in capital and lower case letters as indicated:

(1) FOLLOW VEHICLE MANUFACTURER'S RECOMMENDATIONS WHEN ADDING BRAKE FLUID.

(2) KEEP BRAKE FLUID CLEAN AND DRY. Contamination with dirt, water, petroleum products or other materials may result in brake failure or costly repairs.

(3) STORE BRAKE FLUID ONLY IN ITS ORIGINAL CONTAINER. KEEP CONTAINER CLEAN AND TIGHTLY CLOSED TO PREVENT ABSORPTION OF MOISTURE. (The last five words of the second sentence may be omitted from the labeling on DOT 5 containers.)

(4) CAUTION: DO NOT REFILL CONTAINER, AND DO NOT USE FOR OTHER LIQUIDS. (Not required for containers with a capacity in excess of 5 gallons).

**S5.2.2.3** Each packager of hydraulic system mineral oil shall furnish the following information clearly and indelibly marked on each container in any location except a removable part such as a lid:

(a) The name of the packager of the hydraulic system mineral oil, which may be in code form.

(b) The name and complete mailing address of the distributor.

(c) A serial number identifying the packaged lot and date of packaging.

(d) Designation of the contents as "HYDRAULIC SYSTEM MINERAL OIL" in capital letters at least 1/4 of an inch high.

(e) The following safety warnings in capital and lower case letters as indicated:

(1) FOLLOW VEHICLE MANUFACTURER'S RECOMMENDATIONS WHEN ADDING HYDRAULIC SYSTEM MINERAL OIL.

(2) Hydraulic System Mineral Oil is *NOT COMPATIBLE* with the rubber components of brake systems designed for use with DOT brake fluids.

(3) KEEP HYDRAULIC SYSTEM MINERAL OIL CLEAN. Contamination with dust or other materials may result in brake failure or costly repair.

(4) CAUTION: STORE HYDRAULIC SYSTEM MINERAL OIL ONLY IN ITS ORIGINAL CONTAINER. KEEP CONTAINER CLEAN AND TIGHTLY CLOSED. DO NOT REFILL CONTAINER OR USE OTHER LIQUIDS. (The last sentence is not required for container with a capacity in excess of 5 gallons.)

**S5.2.2.4** If a container for brake fluid or hydraulic system mineral oil is not normally visible but designed to be protected by an outer container or carton during use, the outer container or carton rather than the inner container shall meet the labeling requirements of S5.2.2.2 or S5.2.2.3, as appropriate.

**S5.3 Motor vehicle requirement.** Each passenger car, multipurpose passenger vehicle, truck, bus, trailer, and motorcycle that has a hydraulic brake system shall be equipped with fluid that has been manufactured and packaged in conformity with the requirements of this standard.

## **S6. Test procedures.**

**S6.1 Equilibrium reflux boiling point.** Determine the ERBP of a brake fluid by running duplicate samples according to the following procedure and averaging the results.

**S6.1.1 Summary of procedure.** Sixty milliliters (ml) of brake fluid are boiled under specified equilibrium conditions (reflux) at atmospheric pressure in a 100-ml flask. The average temperature of the boiling fluid at the end of the reflux period, corrected for variations in barometric pressure if necessary, is the ERBP.

**S6.1.2 Apparatus.** (See Figure 1) The test apparatus shall consist of—

(a) *Flask.* (See Figure 2) A 100-ml round-bottom, short-neck heat-resistant glass flask having a neck with a 19/38 standard taper, female ground-glass joint and a side-entering tube, with an outside diameter of 10 millimeters (mm), which centers the thermometer bulb in the flask 6.5 mm from the bottom;

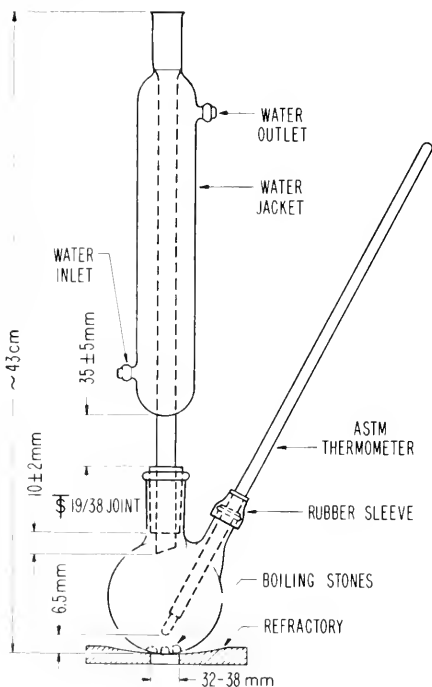


FIG. 1  
BOILING POINT TEST APPARATUS

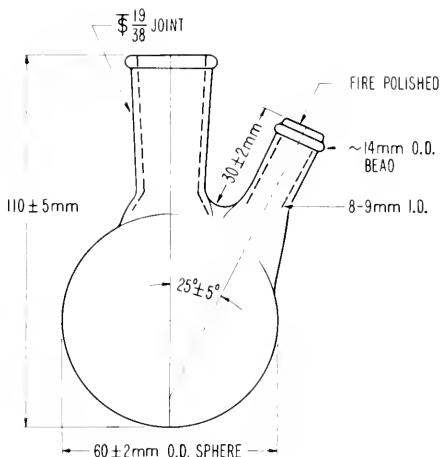


FIG. 2  
DETAIL OF 100ml SHORT-NECK FLASK

(b) *Condenser.* A water-cooled, reflux, glass-tube-type condenser having a jacket 200 mm in length, the bottom end of which has a 19/38 standard-taper, drip-tip, male ground-glass joint;

(c) *Boiling stones.* Three clean, unused silicon carbide grains (approximately 2 mm (0.08 inch) in diameter, grit No. 8);

(d) *Thermometer.* Standardized calibrated partial immersion (76 mm), solid stem, thermometers conforming to the requirements for an ASTM 2C or 2F, and an ASTM 3C or 3F thermometer; and

(e) *Heat source.* Variable autotransformer-controlled heating mantle designed to fit the flask, or an electric heater with rheostat heat control.

### S6.1.3 Preparation of apparatus.

(a) Thoroughly clean and dry all glassware.

(b) Insert thermometer through the side tube until the tip of the bulb is 6.5 mm (¼ inch) from the bottom center of the flask. Seal with a short piece of natural rubber, EPDM, SBR or butyl tubing.

(c) Place  $60 \pm 1$  ml of brake fluid and the silicon carbide grains into the flask.

(d) Attach the flask to the condenser. When using a heating mantle, place the mantle under the flask and support it with a ring-clamp and laboratory-type stand, holding the entire assembly in place by a clamp. When using a rheostat-controlled heater, center a standard porcelain or hard asbestos refractory, having a diameter opening 32 to 38 mm, over the heating element and mount the flask so that direct heat is applied only through the opening in the refractory. Place the assembly in an area free from drafts or other types of sudden temperature changes. Connect the cooling water inlet and outlet tubes to the condenser. Turn on the cooling water. The water supply temperature shall not exceed  $28^\circ \text{C}$ . ( $82.4^\circ \text{F}$ .) and the temperature rise through the condenser shall not exceed  $2^\circ \text{C}$ . ( $3.6^\circ \text{F}$ .)

#### S6.1.4 Procedure for preparation of apparatus.

Apply heat to the flask so that within  $10 \pm 2$  minutes the fluid is refluxing in excess of 1 drop per second. The reflux rate shall not exceed 5 drops per second at any time. Immediately adjust the heating rate to obtain an equilibrium reflux rate of 1 to 2 drops per second over the next  $5 \pm 2$  minutes. Maintain this rate for an additional 2 minutes, taking four temperature readings at 30-second intervals. Record the average of these as the observed ERBP. If no reflux is evident when the fluid temperature reaches  $260^\circ \text{C}$ . ( $500^\circ \text{F}$ .), discontinue heating and report ERBP as in excess of  $260^\circ \text{C}$ . ( $500^\circ \text{F}$ .)

#### S6.1.5 Calculation.

(a) *Thermometer inaccuracy.* Correct the observed ERBP by applying any correction factor obtained in standardizing the thermometer.

(b) *Variation from standard barometric pressure.* Apply the factor shown in Table III to calculate the barometric pressure correction to the ERBP.

(c) If the two corrected observed ERBP's agree within  $2.0^\circ \text{C}$ . ( $4.0^\circ \text{C}$  for brake fluids having an ERBP over  $230^\circ \text{C}$ ./ $446^\circ \text{F}$ .) average the duplicate runs as the ERBP; otherwise, re-

peat the entire test, averaging the four corrected observed values to determine the original ERBP.

TABLE III.—Correction For Barometric Pressure

Observed ERBP corrected for thermometer inaccuracy	Correction per 2 mm difference in pressure <sup>a</sup> °C.	
100° C. (212° F.) to 190° C. (374° F.)	0.039	(0.07)
Over 190° C. (374° F.)	0.04	(0.08)

<sup>a</sup>To be added in case barometric pressure is below 760 mm; to be subtracted in case barometric pressure is above 760 mm.

**S6.2 Wet ERBP.** Determine the wet ERBP of a brake fluid by running duplicate samples according to the following procedure.

**S6.2.1 Summary of the procedure.** A 100-ml sample of the brake fluid is humidified under controlled conditions; 100 ml of SAE RM-1 Compatibility Fluid is used to establish the end point for humidification. After humidification the water content and ERBP of the brake fluid are determined.

**S6.2.2 Apparatus for humidification.** (See Figure 3) Test apparatus shall consist of—

(a) *Glass jars.* Four SAE RM-49 corrosion test jars or equivalent screw-top, straight-sided,

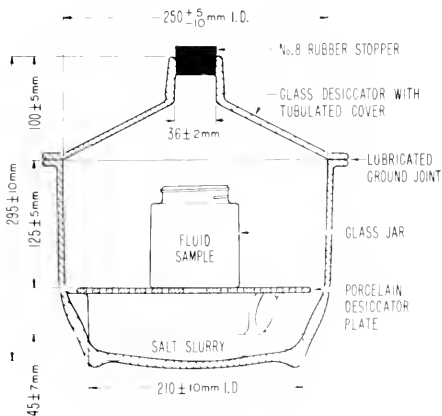


FIG. 3  
HUMIDIFICATION APPARATUS

round glass jars each having a capacity of about 475 ml and approximate inner dimensions of 100 mm in height by 75 mm in diameter, with matching lids having new, clean inserts providing water-vapor-proof seals;

(b) *Desiccator and cover.* Four bowl-form glass desiccators, 250 mm inside diameter, having matching tubulated covers fitted with No. 8 rubber stoppers; and

(c) *Desiccator plate.* Four 230-mm-diameter, perforated porcelain desiccator plates, without feet, glazed on one side.

#### **S6.2.3 Reagents and materials.**

(a) Ammonium sulfate,  $(\text{NH}_4)_2\text{SO}_4$ . Reagent or A.C.S. grade.

(b) Distilled water, see S7.1.

(c) SAE RM-1 compatibility fluid.

**S6.2.4 Preparation of apparatus.** Lubricate the ground-glass joint of the desiccator. Load each desiccator with  $450 \pm 25$  grams of the ammonium sulfate and add  $125 \pm 10$  ml of distilled water. The surface of the salt slurry shall lie within  $45 \pm 7$  mm of the top surface of the desiccator plate. Place the desiccators in an area with temperature controlled at  $23 \pm 2^\circ \text{C}$ . ( $73.4 \pm 3.6^\circ \text{F}$ .) throughout the humidification procedure. Load the desiccators with the slurry and allow to condition with the covers on and stoppers in place at least 12 hours before use. Use a fresh charge of salt slurry for each test.

**S6.2.5 Procedure.** Pour  $100 \pm 1$  ml of the brake fluid into a corrosion test jar. Promptly place the jar into a desiccator. Prepare duplicate test sample, and two duplicate specimens of the SAE RM-1 compatibility fluid. Adjust water content of the SAE RM-1 fluid to  $0.50 \pm 0.05$  percent by weight at the start of the test in accordance with S7.2. At intervals remove the rubber stopper in the top of each desiccator containing SAE RM-1 fluid. Using a long-needled hypodermic syringe, take a sample of not more than 2 ml from each jar and determine its water content. Remove no more than 10 ml of fluid from each SAE RM-1 sample during the humidification procedure. When the water content of the SAE fluid reaches  $3.50 \pm 0.05$  percent by weight (average of the duplicates),

remove the two test fluid specimens from their desiccators and promptly cap each jar tightly. Measure the water contents of the test fluid specimens in accordance with S7.2 and determine their ERBP's in accordance with S6.1 through S6.1.5. If the 2 ERBP's agree with  $4^\circ \text{C}$ . ( $8^\circ \text{F}$ .), average them to determine the wet ERBP; otherwise repeat and average the four individual ERBP's as the wet ERBP of the brake fluid.

**S6.3 Kinematic viscosity.** Determine the kinematic viscosity of a brake fluid in centistokes (cSt) by the following procedure. Run duplicate samples at each of the specified temperatures, making two timed runs on each sample.

**S6.3.1 Summary of the procedure.** The time is measured for a fixed volume of the brake fluid to flow through a calibrated glass capillary viscometer under an accurately reproducible head and at a closely controlled temperature. The kinematic viscosity is then calculated from the measured flow time and the calibration constant of the viscometer.

#### **S6.3.2 Apparatus.**

(a) *Viscometers.* Calibrated glass capillary-type viscometers, ASTM D2515-66, "Standard Specification for Kinematic Glass Viscometers," measuring viscosity within the precision limits of S6.4.7. Use suspended level viscometers for viscosity measurements at low temperatures. Use Cannon-Fenske Routine or other modified Ostwald viscometers at ambient temperatures and above.

(b) *Viscometer holders and frames.* Mount a viscometer in the constant-temperature bath so that the mounting tube is held within 1 degree of the vertical.

(c) *Viscometer bath.* A transparent liquid bath of sufficient depth such that at no time during the measurement will any portion of the sample in the viscometer be less than 2 cm below the surface or less than 2 cm above the bottom. The bath shall be cylindrical in shape, with turbulent agitation sufficient to meet the temperature control requirements. For measurements within  $15$  to  $100^\circ \text{C}$ . ( $60$  to  $212^\circ \text{F}$ .) the temperature of the bath medium shall not vary by more than  $0.01^\circ \text{C}$ . ( $0.02^\circ \text{F}$ .) over the length



TABLE IV  
KINEMATIC VISCOSITY THERMOMETERS

Temperature range		For tests at		Subdivisions		Thermometer number	
deg C.	deg F.	deg C.	deg F.	deg C.	deg F.	ASTM	IP
minus 55.3 to minus 52.5	minus 67.5 to minus 62.5	minus 55	minus 67	0.05	0.1	74 F.	69 F. or C.
minus 41.4 to minus 38.6	minus 42.5 to minus 37.5	minus 40	minus 40	0.05	0.1	73 F.	68 F. or C.
98.6 to 101.4	207.5 to 212.5	100	212	0.05	0.1	30 F.	32 F. or C.

of the viscometers, or between the positions of the viscometers, or at the locations of the thermometers. Outside this range, the variation shall not exceed 0.03° C. (0.05° F.).

(d) *Thermometers.* Liquid-in-glass Kinematic Viscosity Test Thermometers, covering the range of test temperatures indicated in Table IV and conforming to ASTM E1-68, "Specifications for ASTM Thermometers," and in the IP requirements for IP Standard Thermometers. Standardize before use (see S6.3.3(b)). Use two standardized thermometers in the bath.

(e) *Timing device.* Stop watch or other timing device graduated in divisions representing not more than 0.2 second, with an accuracy of at least  $\pm 0.05$  percent when tested over intervals of 15 minutes. Electrical timing devices may be used when the current frequency is controlled to an accuracy of 0.01 percent or better.

#### S6.3.3 Standardization.

(a) *Viscometers.* Use viscometers calibrated in accordance with Appendix 1 of ASTM D445-65, "Viscosity of Transparent and Opaque Liquids (Kinematic and Dynamic Viscosities)." The calibration constant,  $C$ , is dependent upon the gravitational acceleration at the place of calibration. Thus must, therefore, be supplied by the standardization laboratory together with the instrument constant. Where the acceleration of gravity,  $g$ , in the two locations differs by more than 0.1 percent, correct the calibration constant as follows:

$$C_2 = \frac{g_2}{g_1} \times C_1$$

where the subscripts 1 and 2 indicate respectively the standardization laboratory and the testing laboratory.

(b) *Thermometers.* Check liquid-in-glass thermometers to the nearest 0.01° C. (0.02° F.) by direct comparison with a standardized thermometer. Kinematic Viscosity Test Thermometers shall be standardized at "total immersion." The ice point of standardized thermometers shall be determined before use and the official corrections shall be adjusted to conform to the changes in ice points. (See ASTM E77-66, "Verification and Calibration of Liquid-in-Glass Thermometers.")

(c) *Timers.* Time signals are broadcast by the National Bureau of Standards, Station WWV, Washington, D.C. at 2.5, 5, 10, 15, 20, 25, 30 and 35 Mc/sec (MH.). Time signals are also broadcast by Station CHU from Ottawa, Canada, at 3.330, 7.335 and 14.670 Mc/sec, and Station MSF at Rugby, United Kingdom, at 2.5, 5 and 10 Mc/sec.

#### S6.3.4 Procedure.

(a) Set and maintain the bath at the appropriate test temperature (See S5.1.3) within the limits specified in S6.3.2(c). (Apply the necessary corrections, if any, to all thermometer readings.

(b) Select a clean, dry, calibrated viscometer giving a flow time not less than its specified minimum, or 200 seconds, whichever is the greater.

(c) Charge the viscometer in the manner used when the instrument was calibrated. Do not filter or dry the brake fluid, but protect it from contamination by dirt and moisture during filling and measurements.

(1) Charge the suspended level viscometers by tilting about 30 degrees from the vertical and pouring sufficient brake fluid through the

fill tube into the lower reservoir so that when the viscometer is returned to vertical position the meniscus is between the fill marks. For measurements below 0°C (32°F), before placing the filled viscometer into the constant temperature bath, draw the sample into the working capillary and timing bulb and insert small rubber stoppers to suspend the fluid in this position, to prevent accumulation of water condensate on the walls of the critical portions of the viscometer. Alternatively, fit loosely packed drying tubes onto the open ends of the viscometer to prevent water condensation, but do not restrict the flow of the sample under test by the pressures created in the instrument.

(2) If a Cannon-Fenske Routine viscometer is used, charge by inverting and immersing the smaller arm into the brake fluid and applying vacuum to the larger arm. Fill the tube to the upper timing mark, and return the viscometer to an upright position.

(d) Mount the viscometer in the bath in a true vertical position (See S6.3.2(b)).

(e) The viscometer shall remain in the bath until it reaches the test temperature.

(f) At temperature below 0°C (32°F) conduct an untimed preliminary run by allowing the brake fluid to drain through the capillary into the lower reservoir after the test temperature has been established.

(g) Adjust the head level of the brake fluid to a position in the capillary arm about 5 mm above the first timing mark.

(h) With brake fluid flowing freely measure to within 0.2 second the time required for the meniscus to pass from the first timing mark to the second. If this flow time is less than the minimum specified for the viscometer, or 200 seconds, whichever is greater, repeat using a viscometer with a capillary of smaller diameter.

(i) Repeat S6.3.4(g) and (h). If the two timed runs do not agree within 0.2 percent, reject and repeat using a fresh sample of brake fluid.

### S6.3.5 Cleaning of viscometers.

(a) Periodically clean the instrument with chromic acid to remove organic deposits. Rinse

thoroughly with distilled water and acetone, and dry with clean dry air.

(b) Between successive samples rinse the viscometer with ethanol (isopropanol when testing DOT 5 fluids) followed by an acetone or ether rinse. Pass a slow stream of filtered dry air through the viscometer until the last trace of solvent is removed.

### S6.3.6 Calculation.

(a) The following viscometers have a fixed volume charged at ambient temperature, and as a consequence  $C$  varies with test temperature: Cannon-Fenske Routine, Pinkevitch, Cannon-Manning Semi-Micro, and Cannon Fenske Opaque. To calculate  $C$  at test temperatures other than the calibration temperature for these viscometers, see ASTM D2515-66, "Kinematic Glass Viscometers," or follow instructions given on the manufacturer's certificate of calibration.

(b) Average the four timed runs on the duplicate samples to determine the kinematic viscosities.

### S6.3.7 Precision (at 95 percent confidence level).

(a) *Repeatability.* If results on duplicate samples by the same operator differ by more than 1.0 percent of their mean, repeat the tests.

**S6.4 pH value.** Determine the pH value of a brake fluid by running one sample according to the following procedure.

**S6.4.1 Summary of the procedure.** Brake fluid is diluted with an equal volume of an ethanol-water solution. The pH of the resultant mixture is measured with a prescribed pH meter assembly at 23°C (73.4°F).

**S6.4.2 Apparatus.** The pH assembly consists of the pH meter, glass electrode, and calomel electrode, as specified in Appendices A1.1, A1.2 and A1.3 of ASTM D1121-67, "Standard Method of Test for Reserve Alkalinity of Engine Antifreezes and Antitrusts." The glass electrode is a full range type (pH 0-14), with low sodium error.

**S6.4.3 Reagents.** Reagent grade chemicals conforming to the specifications of the Committee on Analytical Reagents of the American Chemical Society.

(a) *Distilled water.* Distilled water (S7.1) shall be boiled for about 15 minutes to remove carbon dioxide, and protected with a soda-lime tube or its equivalent while cooling and in storage. (Take precautions to prevent contamination by the materials used for protection against carbon dioxide.) The pH of the boiled distilled water shall be between 6.2 and 7.2 at 25°C (77°F).

(b) *Standard buffer solutions.* Prepare buffer solutions for calibrating the pH meter and electrode pair from salts sold specifically for use, either singly or in combination, as pH standards. Dry salts for 1 hour at 110°C (230°F) before use except for borax which shall be used as the decahydrate. Store solutions with pH less than 9.5 in bottles of chemically resistant glass or polyethylene. Store the alkaline phosphate solution in a glass bottle coated inside with paraffin. Do not use a standard with an age exceeding three months.

(1) Potassium hydrogen phthalate buffer solution (0.05 M, pH=4.01 at 25°C (77°F)). Dissolve 10.21 g of potassium hydrogen phthalate ( $\text{KHC}_8\text{H}_4\text{O}_4$ ) in distilled water. Dilute to 1 liter.

(2) Neutral phosphate buffer solution (0.025 M with respect to each phosphate salt, pH=6.86 at 25°C (77°F)). Dissolve 3.40 g of potassium dihydrogen phosphate ( $\text{KH}_2\text{PO}_4$ ) and 3.55 g of anhydrous disodium hydrogen phosphate ( $\text{Na}_2\text{HPO}_4$ ) in distilled water.

(3) Borax buffer solution (0.01 M, pH=9.18 at 25°C (77°F)). Dissolve 3.81 g of disodium tetraborate decahydrate ( $\text{Na}_2\text{B}_4\text{O}_{10} \cdot 10\text{H}_2\text{O}$ ) in distilled water, and dilute to 1 liter. Stopper the bottle except when actually in use.

(4) Alkaline phosphate buffer solution (0.01 M trisodium phosphate, pH=11.72 at 25°C (77°F)). Dissolve 1.42 g of anhydrous disodium hydrogen phosphate ( $\text{Na}_2\text{HPO}_4$ ) in 100 ml of a 0.1 M carbonate-free solution of sodium hydroxide. Dilute to 1 liter with distilled water.

(5) Potassium chloride electrolyte. Prepare a saturated solution of potassium chloride (KCl) in distilled water.

(c) *Ethanol-water mixture.* To 80 parts by volume of ethanol (S7.3) add 20 parts by volume

of distilled water. Adjust the pH of the mixture to  $7.0 \pm 0.1$  using 0.1 N sodium hydroxide (NaOH) solution. If more than 4.0 ml of NaOH solution per liter of mixture is required for neutralization, discard the mixture.

#### S6.4.4 Preparation of electrode system.

(a) *Maintenance of electrodes.* Clean the glass electrode before using by immersing in cold chromic-acid cleaning solution. Drain the calomel electrode and fill with KCl electrolyte, keeping level above that of the mixture at all times. When not in use, immerse the lower halves of the electrodes in distilled water, and do not immerse in the mixture for any appreciable period of time between determinations.

(b) *Preparation of electrodes.* Condition new glass electrodes and those that have been stored dry as recommended by the manufacturer. Before and after using, wipe the glass electrode thoroughly with a clean cloth, or a soft absorbent tissue, and rinse with distilled water. Before each pH determination, soak the prepared electrode in distilled water for at least 2 minutes. Immediately before use, remove any excess water from the tips of the electrode.

#### S6.4.5 Standardization of the pH assembly and testing of the electrodes.

(a) Immediately before use, standardize the pH assembly with a standard buffer solution. Then use a second standard buffer solution to check the linearity of the response of the electrodes at different pH values, and to detect a faulty glass electrode or incorrect temperature compensation. The two buffer solutions bracket the anticipated pH value of the test brake fluid.

(b) Allow instrument to warm up, and adjust according to the manufacturer's instructions. Immerse the tips of the electrodes in a standard buffer solution and allow the temperature of the buffer solution and the electrodes to equalize. Set the temperature knob at the temperature of the buffer solution. Adjust the standardization or asymmetry potential control until the meter registers a scale reading, in pH units, equal to the known pH of the standardizing buffer solution.

(c) Rinse the electrodes with distilled water and remove excess water from the tips. Immerse

the electrodes in a second standard buffer solution. The reading of the meter shall agree with the known pH of the second standard buffer solution within  $\pm 0.05$  unit without changing the setting of the standardization of asymmetry potential control.

(d) A faulty electrode is indicated by failure to obtain a correct value for the pH of the second standard buffer solution after the meter has been standardized with the first.

**S6.4.6 Procedure.** To  $50 \pm 1$  ml of the test brake fluid add  $50 \pm 1$  ml of the ethanol-water (S6.4.3(c)) and mix thoroughly. Immerse the electrodes in the mixture. Allow the system to come to equilibrium, readjust the temperature compensation if necessary, and take the pH reading.

**S6.5 Fluid stability.** Evaluate the heat and chemical stability of a brake fluid by the following procedure, running duplicate samples for each test and averaging the results.

**S6.5.1 Summary of the procedure.** The degradation of the brake fluid at elevated temperature, alone or in a mixture with a reference fluid, is evaluated by determining the change in boiling point after a period of heating under reflux conditions.

**S6.5.2 Apparatus.** Use the apparatus and preparation specified in S6.1.2 and S6.1.3.

#### **S6.5.3 High temperature stability.**

##### **S6.5.3.1 Procedure.**

(a) Heat a new  $60 \pm 1$  ml sample of the brake fluid to  $185 \pm 2^\circ\text{C}$  ( $365 \pm 3.6^\circ\text{F}$ ). Hold at this temperature for  $120 \pm 5$  minutes. Bring to a reflux rate in excess of 1 drop per second within 5 minutes. The reflux rate should not exceed 5 drops per second at any time. Over the next  $5 \pm 2$  minutes adjust the heating rate to obtain an equilibrium reflux rate of 1 to 2 drops per second. Maintain this rate for an additional 2 minutes, taking 4 temperature readings at 30-second intervals. Average these as the observed ERBP. If no reflux is evident when the fluid temperature reaches  $260^\circ\text{C}$  ( $500^\circ\text{F}$ ), discontinue heating and report ERBP as in excess of  $260^\circ\text{C}$  ( $500^\circ\text{F}$ ).

**S6.5.3.2 Calculation.** Correct the observed ERBP for thermometer and barometric pressure factors according to S6.1.5(a) and (b). Average the corrected ERBP's of the duplicate samples. The difference between this average and the original ERBP obtained in S6.1 is the change in ERBP of the fluid.

#### **S6.5.4 Chemical stability.**

**S6.5.4.1 Materials.** SAE RM-1 Compatibility Fluid, as described in Appendix A of SAE Standard J1703b, "Motor Vehicle Brake Fluid," April 1968.

##### **S6.5.4.2 Procedure.**

(a) Mix  $30 \pm 1$  ml of the brake fluid with  $30 \pm 1$  ml of SAE RM-1 Compatibility Fluid in a boiling point flask (S6.1.2(a)). Determine the initial ERBP of the mixture by applying heat to the flask so that the fluid is refluxing in  $10 \pm 2$  minutes at a rate in excess of 1 drop per second, but not more than 5 drops per second. Note the maximum fluid temperature observed during the first minute after the fluid begins refluxing at a rate in excess of 1 drop per second. Over the next  $15 \pm 1$  minutes, adjust and maintain the reflux rate at 1 to 2 drops per second. Maintain this rate for an additional 2 minutes, recording the average value of four temperature readings taken at 30-second intervals as the final ERBP.

(b) Thermometer and barometric corrections are not required.

**S6.5.4.3 Calculation.** The difference between the initial ERBP and the final average temperature is the change in temperature of the refluxing mixture. Average the results of the duplicates to the nearest  $0.5^\circ\text{C}$  ( $1^\circ\text{F}$ ).

**S6.6 Corrosion.** Evaluate the corrosiveness of a brake fluid by running duplicate samples according to the following procedure.

**S6.6.1 Summary of the procedure.** Six specified metal corrosion test strips are polished, cleaned, and weighed, then assembled as described. Assembly is placed on a standard wheel cylinder cup in a corrosion test jar, immersed in the water-wet brake fluid, capped and placed in an oven at  $100^\circ\text{C}$  ( $212^\circ\text{F}$ ) for 120 hours.

Upon removal and cooling, the strips, fluid, and cups are examined and tested.

#### S6.6.2 Equipment.

(a) *Balance.* An analytical balance having a minimum capacity of 50 grams and capable of weighing to the nearest 0.1 mg.

(b) *Desiccators.* Desiccators containing silica gel or other suitable desiccant.

(c) *Oven.* Gravity convection oven capable of maintaining the desired set point within 2°C (3.6°F).

(d) *Micrometer.* A machinist's micrometer 25 to 50 mm (1 to 2 inches) capacity, or an optical comparator, capable of measuring the diameter of the SBR wheel cylinder (WC) cups to the nearest 0.02 mm (0.001 inch).

#### S6.6.3 Materials.

(a) *Corrosion test strips.* Two sets of strips from each of the metals listed in Appendix C of SAE Standard J1703b. Each strip shall be approximately 8 cm long, 1.3 cm wide, not more than 0.6 cm thick, and have a surface area of  $25 \pm 5$  sq cm and a hole 4 to 5 mm (0.16 to 0.20 inch) in diameter on the centerline about 6 mm from one end. The hole shall be clean and free from burrs. Tinned iron strips shall be unused. Other strips, if used, shall not be employed if they cannot be polished to a high finish.

(b) *SBR cups.* Two unused standard SAE SBR wheel cylinder (WC) cups, as specified in S7.6.

(c) *Corrosion test jars and lids.* Two screw-top straight-sided round glass jars, each having a capacity of approximately 475 ml and inner dimensions of approximately 100 mm in height and 75 mm in diameter, and a tinned steel lid (no insert or organic coating) vented with a hole  $0.8 \pm 0.1$  mm ( $0.031 \pm 0.004$  inch) in diameter (No. 68 drill).

(d) *Machine screws and nuts.* Clean, rust and oil-free, uncoated mild steel round or fillister head machine screws, size 6 or 8-32 UNC-Class 2A,  $\frac{1}{2}$  or  $\frac{3}{4}$  inch long (or equivalent metric sizes), and matching uncoated nuts.

(e) *Supplies for polishing strips.* Waterproof silicon carbide paper, grit No. 320 A; grade 00 steel wool, lint-free polishing cloth.

(f) *Distilled water* as specified in S7.1.

(g) *Ethanol* as specified in S7.3.

(h) *Isopropanol* as specified in S7.7.

#### S6.6.4 Preparation.

(a) *Corrosion test strips.* Except for the tinned iron strips, abrade corrosion test strips on all surface areas with silicon carbide paper wet with ethanol (isopropanol when testing DOT 5 fluids) until all surface scratches, cuts and pits are removed. Use a new piece of paper for each different type of metal. Polish the strips with the 00 grade steel wool. Wash all strips, including the tinned iron and the assembly hardware, with ethanol; dry the strips and assembly hardware with a clean lint-free cloth or use filtered compressed air and place the strips and hardware in a desiccator containing silica gel or other suitable desiccant and maintained at  $23 \pm 5^\circ\text{C}$  ( $73.4 \pm 9^\circ\text{F}$ ), for at least one hour. Handle the strips with forceps after polishing. Weight and record the weight of each strip to the nearest 0.1 mg. Assemble the strips on a clean dry machine screw, with matching plain nut, in the order of tinned iron, steel, aluminum, cast iron, brass, and copper. Bend the strips, other than the cast iron, so that there is a separation of  $3 \pm \frac{1}{2}$  mm ( $\frac{1}{8} \pm \frac{1}{16}$  inch) between adjacent strips for a distance of about 5 cm (2 inches) from the free end of the strips. (See Figure 4.) Tighten the screw on each test strip assembly so that the strips are in electrolytic contact, and can be lifted by either of the outer strips (tinned iron or copper) without any of the strips moving relative to the others when held horizontally. Immerse the strip assemblies in 90 percent ethyl alcohol. Dry with dried filtered compressed air, then desiccate at least one hour before use.

(b) *SBR WC cups.* Measure the base diameters of the 2 standard SBR cups, using an optical comparator or micrometer, to the nearest 0.02 mm (0.001 inch) along the centerline of the SAE and rubber-type identifications and at right angles to this centerline. Take the measurements at least 0.4 mm (0.015 inch) above the bottom edge and parallel to the base of the cup. Discard any cup if the two measured diameters differ by more than 0.08 mm (0.003 inch). Average the two readings on each cup. Determine the hardness of the cups according to S7.4.

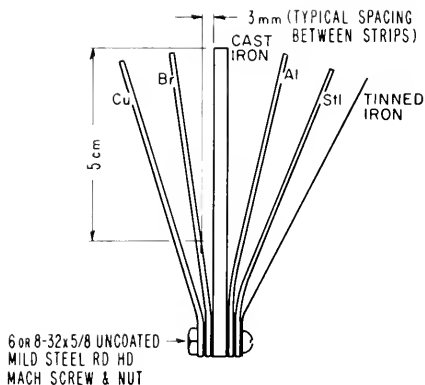


FIG. 4  
CORROSION STRIP ASSEMBLY

**S6.6.5 Procedure.** Rinse the cups in ethanol (isopropanol when testing DOT 5 fluids) for not more than 30 seconds and wipe dry with a clean lint-free cloth. Place one cup with lip edge facing up in each jar. Insert a metal strip assembly inside each cup with the fastened end down and the free end extending upward. (See Figure 5.) When testing DOT 3 and DOT 4 brake fluids, mix 760 ml. of brake fluid with 40 ml. of distilled water, or, when testing DOT 5 brake fluids, humidify 800 ml of brake fluid in accordance with S6.2, eliminating determination of the ERBP; using this water-wet mixture, cover each strip assembly to a minimum depth of 10 mm. above the tops of the strips. Tighten the lids and place the jars for  $120 \pm 2$  hours in an oven maintained at  $100 \pm 2^\circ \text{C}$ . ( $212 \pm 3.6^\circ \text{F}$ ). Allow the jars to cool at  $23 \pm 5^\circ \text{C}$ . ( $73.4 \pm 9^\circ \text{F}$ ) for 60 to 90 minutes. Immediately remove the strips from the jars using forceps, agitating the strip assembly in the fluid to remove adhering sediment. Examine the test strips and jars for adhering crystalline deposits. Disassemble the metal strips, and remove adhering fluid by flushing with water; clean each strip by wiping with a clean cloth wetted with ethanol. Examine the strips for evidence of corrosion and

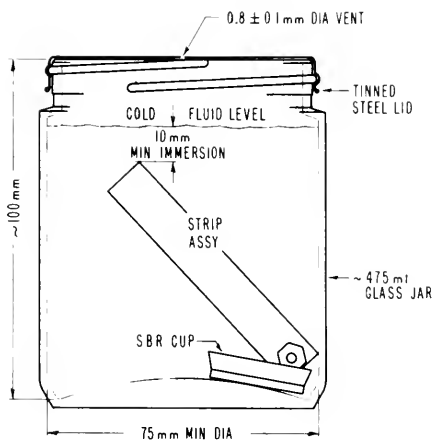


FIG. 5  
CORROSION TEST  
APPARATUS

pitting. Disregard staining or discoloration. Place the strips in a desiccator containing silica gel or other suitable desiccant, maintained at  $23 \pm 5^\circ \text{C}$ . ( $73.4 \pm 9^\circ \text{F}$ ), for at least 1 hour. Weigh each strip to the nearest 0.1 mg. Determine the change in weight of each metal strip. Average the results for the two strips of each type of metal. Immediately following the cooling period, remove the cups from the jars with forceps. Remove loose adhering sediment by agitation of the cups in the mixture. Rinse the cups in ethanol and air-dry. Examine the cups for evidence of sloughing, blisters, and other forms of disintegration. Measure the base diameter and hardness of each cup within 15 minutes after removal from the mixture. Examine the mixture for gelling. Agitate the mixture to suspend and uniformly disperse sediment. From each jar, transfer a 100 ml portion of the mixture to an ASTM cone-shaped centrifuge tube. Determine the percent sediment after centrifuging as described in S7.5. Measure the pH value of the DOT 3 and DOT 4 test mixture according to S6.4.6.

#### S6.6.6 Calculation.

(a) Measure the area of each type of test strip to the nearest square centimeter. Divide the average change in weight for each type by the area of that type.

(b) Note other data and evaluations indicating compliance with S5.1.6. In the event of a marginal pass on inspection by attributes, or of a failure in one of the duplicates, run another set of duplicate samples. Both repeat samples shall meet all requirements of S5.1.6.

**S6.7 Fluidity and appearance at low temperatures.** Determine the fluidity and appearance of a sample of brake fluid at each of two selected temperatures by the following procedure.

**S6.7.1 Summary of procedure.** Brake fluid is chilled to expected minimum exposure temperatures and observed for clarity, gelation, sediment, separation of components, excessive viscosity or thixotropy.

#### S6.7.2 Apparatus.

(a) *Oil sample bottle.* Two clear flint glass 4-ounce bottles made especially for sampling oil and other liquids, with a capacity of approximately 125 ml, an outside diameter of  $37.0 \pm 0.05$  mm and an overall height of  $165 \pm 2.5$  mm.

(b) *Cold chamber.* An air bath cold chamber capable of maintaining storage temperatures down to minus  $55^{\circ}\text{C}$  (minus  $67^{\circ}\text{F}$ ) with an accuracy of  $\pm 2^{\circ}\text{C}$  ( $3.6^{\circ}\text{F}$ ).

(c) *Timing device.* A timing device in accordance with S6.3.2(e).

#### S6.7.3 Procedure.

(a) Place  $100 \pm 1$  ml. of brake fluid at room temperature in an oil sample bottle. Stopper the bottle with an unused cork and place in the cold chamber at the higher storage temperature specified in Table II (S5.1.7(c)). After  $144 \pm 4$  hours remove the bottle from the chamber, quickly wipe it with a clean, lint-free cloth, saturated with ethanol (isopropanol when testing DOT 5 fluids) or acetone. Examine the fluid for evidence of sludging, sedimentation, crystallization, or stratification. Invert the bottle and determine the number of seconds required for the air bubble to travel to the top of the fluid. Let sample warm to room temperature and examine. (39

(b) Repeat S6.7.3(a), substituting the lower cold chamber temperature specified in Table II, and a storage period of 6 hours  $\pm$  12 minutes. NOTE: Test specimens from either storage temperature may be used for the other only after warming up to room temperature.

**S6.8 Evaporation.** The evaporation residue, and pour point of the evaporation residue of brake fluid, are determined by the following procedure. Four replicate samples are run.

**S6.8.1 Summary of the procedure.** The volatile diluent portion of a brake fluid is evaporated in an oven at  $100^{\circ}\text{C}$  ( $212^{\circ}\text{F}$ ). The non-volatile lubricant portion (evaporation residue) is measured and examined for grittiness; the residues are then combined and checked to assure fluidity at minus  $5^{\circ}\text{C}$  ( $23^{\circ}\text{F}$ ).

#### S6.8.2 Apparatus.

(a) *Petri dishes.* Four covered glass petri dishes approximately 100 mm in diameter and 15 mm in height.

(b) *Oven.* A top-vented gravity-convection oven capable of maintaining a temperature of  $100 \pm 2^{\circ}\text{C}$  ( $212 \pm 3.6^{\circ}\text{F}$ ).

(c) *Balance.* A balance having a capacity of at least 100 grams, capable of weighing to the nearest 0.01 gram, and suitable for weighing the petri dishes.

(d) *Oil sample bottle.* A glass sample bottle as described in S6.7.2(a).

(e) *Cold chamber.* Air bath cold chamber capable of maintaining an oil sample bottle at minus  $5 \pm 1^{\circ}\text{C}$  ( $23 \pm 2^{\circ}\text{F}$ ).

(f) *Timing device.* A timing device as described in S6.3.2(e).

**S6.8.3 Procedure.** Obtain the tare weight of each of the four covered petri dishes to the nearest 0.01 gram. Place  $25 \pm 1$  ml of brake fluid in each dish, replace proper covers and reweigh. Determine the weight of each brake fluid test specimen by the difference. Place the four dishes, each inside its inverted cover, in the oven at  $100 \pm 2^{\circ}\text{C}$  ( $212 \pm 3.6^{\circ}\text{F}$ ) for  $46 \pm 2$  hours. (Note: Do not simultaneously heat more than one fluid in the same oven.) Remove the dishes from the oven, allow to cool to  $23 \pm 5^{\circ}\text{C}$  ( $73.4 \pm 9^{\circ}\text{F}$ ), and weigh. Return to the oven for an ad-

ditional  $24 \pm 2$  hours. If at the end of  $72 \pm 4$  hours the average loss by evaporation is less than 60 percent, discontinue the evaporation procedure and proceed with examination of the residue. Otherwise, continue this procedure either until equilibrium is reached as evidenced by an incremental weight loss of less than 0.25 gram in 24 hours on all individual dishes or for a maximum of 7 days. During the heating and weighing operation, if it is necessary to remove the dishes from the oven for a period of longer than 1 hour, the dishes shall be stored in a desiccator as soon as cooled to room temperature. Calculate the percentage of fluid evaporated from each dish. Examine the residue in the dishes at the end of 1 hour at  $23 \pm 5^\circ\text{C}$  ( $73.4 \pm 9^\circ\text{F}$ ). Rub any sediment with the fingertip to determine grittiness or abrasiveness. Combine the residues from all four dishes in a 4-ounce oil sample bottle and store vertically in a cold chamber at minus  $5 \pm 1^\circ\text{C}$  ( $23 \pm 2^\circ\text{F}$ ) for  $60 \pm 10$  minutes. Quickly remove the bottle and place in the horizontal position. The residue must flow at least 5 mm (0.2 inch) along the tube within 5 seconds.

**S6.8.4 Calculation.** The average of the percentage evaporated from all four dishes is the loss by evaporation.

**S6.9 Water tolerance.** Evaluate the water tolerance characteristics of a brake fluid by running one test specimen according to the following procedure.

**S6.9.1 Summary of the procedure.** DOT 3 and DOT 4 brake fluid is diluted with 3.5 percent water, and DOT 5 brake fluid is humidified, then stored at minus  $40^\circ\text{C}$ . (minus  $40^\circ\text{F}$ .) for 120 hours. The cold, water-wet fluid is first examined for clarity, stratification, and sedimentation, then placed in an oven at  $60^\circ\text{C}$ . ( $140^\circ\text{F}$ .) for 24 hours. On removal, it is again examined for stratification and the volume percent of sediment determined by centrifuging.

#### **S6.9.2 Apparatus.**

- (a) *Centrifuge tube.* See S7.5.1(a).
- (b) *Centrifuge.* See S7.5.1(b).
- (c) *Cold chamber.* See S6.7.2(b).
- (d) *Oven.* Gravity or forced convection oven.
- (e) *Timing device.* See S6.3.2(e).

#### **S6.9.3 Procedure.**

(a) *At low temperature.* Humidify 100  $\pm$  1 ml. of DOT 5 brake fluid in accordance with S6.2 eliminating determination of the ERBP. When testing DOT 3 and DOT 4 brake fluids, mix  $3.5 \pm 0.1$  ml. of distilled water with 100  $\pm$  1 ml. of the brake fluid; pour into a centrifuge tube. Stopper the tube with a clean cork and place in the cold chamber maintained at minus  $40 \pm 2^\circ\text{C}$ . (minus  $40 \pm 3.6^\circ\text{F}$ .) After 120 hours  $\pm 2$  hours remove the tube, quickly wipe with clean lint-free cloth saturated with ethanol or acetone and examine the fluid, for evidence of sludging, sedimentation, crystallization, or stratification. Invert the tube and determine the number of seconds required for the air bubble to travel to the top of the fluid. (The air bubble is considered to have reached the top of the fluid when the top of the bubble reaches the 2 ml. graduation of the centrifuge tube.) If the wet fluid has become cloudy, warm to  $23 \pm 5^\circ\text{C}$ . ( $73.4 \pm 9^\circ\text{F}$ .) and note appearance and fluidity.

(b) *At  $60^\circ\text{C}$  ( $140^\circ\text{F}$ ).* Place tube and brake fluid from S6.9.3(a) in an oven maintained at  $60 \pm 2^\circ\text{C}$  ( $140 \pm 2.6^\circ\text{F}$ ) for  $24 \pm 2$  hours. Remove the tube and immediately examine the contents for evidence of stratification. Determine the percent sediment by centrifuging as described in S7.5.

**S6.10 Compatibility.** The compatibility of a brake fluid with other brake fluids shall be evaluated by running one test sample according to the following procedure.

**S6.10.1 Summary of the procedure.** Brake fluid is mixed with an equal volume of SAE RM- Compatibility Fluid, then tested in the same way as for water tolerance (S6.9.3) except that the bubble flow time is not measured. This test is an indication of the compatibility of the test fluid with other motor vehicle brake fluids at both high and low temperatures.

#### **S6.10.2 Apparatus and materials.**

- (a) *Centrifuge tube.* See S7.5.1(a).
- (b) *Centrifuge.* See S7.5.1(b).
- (c) *Cold chamber.* See S6.7.2(b).
- (d) *Oven.* See S6.9.2(d).
- (e) *SAE RM-1 Compatibility Fluid.* As described in Appendix A of SAE Standard J1703b.



### S6.10.3 Procedure.

(a) *At low temperature.* Mix  $50 \pm 0.5$  ml of brake fluid with  $50 \pm 0.5$  ml of SAE RM-1 Compatibility Fluid. Pour this mixture into a centrifuge tube and stopper with a clean dry cork. Place tube in the cold chamber maintained at minus  $40 \pm 2^\circ\text{C}$  (minus  $40 \pm 3.6^\circ\text{F}$ ). After  $24 \pm 2$  hours, remove tube, quickly wipe with a clean lint-free cloth saturated with ethanol (isopropanol when testing DOT 5 fluids) or acetone. Examine the test specimen for evidence of sludging, sedimentation, or crystallization. DOT 3 and DOT 4 test fluids shall also be examined for stratification.

(b) *At  $60^\circ\text{C}$  ( $140^\circ\text{F}$ ).* Place tube and test fluid from S6.10.3(a) for  $24 \pm 2$  hours in an oven maintained at  $60 \pm 2^\circ\text{C}$ . ( $140 \pm 3.6^\circ\text{F}$ ). Remove tube and immediately examine the contents of DOT 3 and DOT 4 test mixtures for evidence of stratification. Determine percent sediment by centrifuging as described in S7.5.

**S6.11 Resistance to oxidation.** The stability of a brake fluid under oxidative conditions shall be evaluated by running duplicate samples according to the following procedure.

**S6.11.1 Summary of the procedure.** DOT 3 and DOT 4 brake fluids are activated with a mixture of approximately 0.2 percent benzoyl peroxide and 5 percent water. DOT 5 brake fluid is humidified in accordance with S6.2 eliminating determination of the ERBP, and then approximately 0.2 percent benzoyl peroxide is added. A corrosion test strip assembly consisting of a cast iron and an aluminum strip separated by tinfoil squares at each end is then rested on a piece of SBR WC cup positioned so that the test strip is half immersed in the fluid, and ovenaged at  $70^\circ\text{C}$ . ( $158^\circ\text{F}$ .) for 168 hours. At the end of this period the metal strips are examined for pitting, etching, and weight loss.

### S6.11.2 Equipment.

- (a) *Balance.* See S6.6.2(a).
- (b) *Desiccators.* See S6.6.2(b).
- (c) *Oven.* See S6.6.2(c).
- (d) Three glass test tubes approximately 22 mm outside diameter by 175 mm in length.

### S6.11.3 Reagents and materials.

(a) *Benzoyl peroxide, reagent grade, 96 percent.* (Benzoyl peroxide that is brownish, or dusty, or has less than 90 percent purity, must be discarded.) Reagent strength may be evaluated by ASTM E298-68, "Standard Methods for Assay of Organic Peroxides."

(b) *Corrosion test strips.* Two sets of cast iron and aluminum metal test strips as described in Appendix C of SAE Standard J1703b.

(c) *Tinfoil.* Four unused pieces of tinfoil approximately 12 mm ( $\frac{1}{2}$  inch) square and between 0.02 and 0.06 mm (0.0008 and 0.0024 inch) in thickness. The foil shall be at least 99.9 percent tin and contain not more than 0.024 percent lead.

(d) *SBR cups.* Two unused, approximately one-eighth sections of a standard SAE SBR WC cup (as described in S7.6)

(e) *Machine screw and nut.* Two clean oil-free, No. 6 or 8-32  $\times$   $\frac{3}{8}$  or  $\frac{1}{2}$  inch long (or equivalent metric size), round or fillister head, uncoated mild steel machine screws, with matching plain nuts.

### S6.11.4 Preparation.

(a) *Corrosion test strips.* Prepare two sets of aluminum and cast iron test strips according to S6.6.4(a) except for assembly. Weigh each strip to the nearest 0.1 mg and assemble a strip of each metal on a machine screw, separating the strips at each end with a piece of tinfoil. Tighten the nut enough to hold both pieces of foil firmly in place.

(b) *Test mixture.* Place  $30 \pm 1$  ml. of the brake fluid under test in a 22 by 175 mm. test tube. For DOT 3 and DOT 4 fluids, add  $0.060 \pm .002$  gram of benzoyl peroxide, and  $1.50 \pm 0.05$  ml. of distilled water. For DOT 5 fluids, use test fluid humidified in accordance with S6.2, and add only the benzoyl peroxide. Stopper the tube loosely with a clean dry cork, shake, and place in an oven for 2 hours at  $70 \pm 2^\circ\text{C}$ . ( $158 \pm 3.6^\circ\text{F}$ .) Shake every 15 minutes to effect solution of the peroxide, but do not wet work. Remove the tube from the oven and allow to cool at  $23 \pm 5^\circ\text{C}$ . ( $73.4 \pm 9^\circ\text{F}$ .) Begin testing according to paragraph S6.11.5 not later than 24 hours after removal of tube from oven.

**S6.11.5 Procedure.** Place a one-eighth SBR cup section in the bottom of each tube. Add 10 ml of prepared test mixture to each test tube. Place a metal-strip assembly in each, the end of the strip without the screw resting on the rubber, and the solution covering about one-half the length of the strips. Stopper the tubes with clean dry corks and store upright for  $70 \pm 2$  hours at  $23 \pm 5^\circ\text{C}$  ( $73.4 \pm 9^\circ\text{F}$ ). Loosen the corks and place the tubes for  $168 \pm 2$  hours in an oven maintained at  $70 \pm 2^\circ\text{C}$  ( $158 \pm 3.6^\circ\text{F}$ ). Afterwards remove and disassemble strips. Examine the strips and note any gum deposits. Wipe the strips with a clean cloth wet with ethanol (isopropanol when testing DOT 5 fluids) and note any pitting, etching or roughening of surface disregarding stain or discoloration. Place the strips in a desiccator over silica gel or other suitable desiccant, at  $23 \pm 5^\circ\text{C}$  ( $73.4 \pm 9^\circ\text{F}$ ) for at least 1 hour. Again weigh each strip to the nearest 0.1 mg.

**S6.11.6 Calculation.** Determine corrosion loss by dividing the change in weight of each metal strip by the total surface area of each strip measured in square centimeters, to the nearest square centimeter. Average the results for the two strips of each type of metal, rounding to the nearest 0.05 mg per square centimeter. If only one of the duplicates fails for any reason, run a second set of duplicate samples. Both repeat samples shall meet all requirements of S5.1.11.

**S6.12 Effect on SBR cups.** The effects of a brake fluid in swelling, softening, and otherwise affecting standard SBR WC cups shall be evaluated by the following procedure.

**S6.12.1 Summary of the procedure.** Four standard SAE SBR WC cups are measured and their hardnesses determined. The cups, two to a jar, are immersed in the test brake fluid. One jar is heated for 70 hours at  $70^\circ\text{C}$  ( $158^\circ\text{F}$ ), and the other for 70 hours at  $120^\circ\text{C}$  ( $248^\circ\text{F}$ ). Afterwards, the cups are washed, examined for disintegration, remeasured, and their hardnesses redetermined.

**S6.12.2 Equipment and supplies.**

(a) *Oven.* See S6.6.2(c).

(b) *Glass jars and lids.* Two screw-top, straight-sided round glass jars, each having a

capacity of approximately 250 ml and inner dimensions of approximately 125 mm in height and 50 mm in diameter, and a tinned steel lid (no insert or organic coating).

(c) *SBR cups.* See S7.6

**S6.12.3 Preparation.** Measure the base diameters of the SBR cups as described in S6.6.4(b), and the hardness of each as described in S7.4.

**S6.12.4 Procedure.** Wash the cups in 90 percent ethanol (isopropanol when testing DOT 5 fluids) (see S7.3), for not longer than 30 seconds and quickly dry with a clean, lint-free cloth. Using forceps, place two cups into each of the two jars; add 75 ml of brake fluid to each jar and cap tightly. Place one jar in an oven held at  $70 \pm 2^\circ\text{C}$  ( $158 \pm 3.6^\circ\text{F}$ ) for  $70 \pm 2$  hours. Place the other jar in an oven held at  $120 \pm 2^\circ\text{C}$  ( $248 \pm 3.6^\circ\text{F}$ ) for  $70 \pm 2$  hours. Allow each jar to cool for 60 to 90 minutes at  $23 \pm 5^\circ\text{C}$  ( $73.4 \pm 9^\circ\text{F}$ ). Remove cups, wash with ethanol for not longer than 30 seconds, and quickly dry. Examine the cups for disintegration as evidenced by stickiness, blisters, or sloughing. Measure the base diameter and hardness of each cup within 15 minutes after removal from the fluid.

**S6.12.5 Calculation.**

(a) Calculate the change in base diameter for each cup. If the two values, at each temperature, do not differ by more than 0.10 mm (0.004 inch) average them to the nearest 0.02 mm (0.001 inch). If the two values differ by more than 0.10 mm, repeat the test at the appropriate temperature and average the four values as the change in base diameter.

(b) Calculate the change in hardness for each cup. The average of the two values for each pair is the change in hardness.

(c) Note disintegration as evidenced by stickiness, blisters or sloughing.

**S6.13 Stroking properties.** Evaluate the lubricating properties, component compatibility, resistance to leakage, and related qualities of a brake fluid by running one sample according to the following procedures.

**S6.13.1 Summary of the procedure.** Brake fluid is stroked under controlled conditions at an

elevated temperature in a simulated motor vehicle hydraulic braking system consisting of four slave wheel cylinders and an actuating master cylinder connected by steel tubing. Referee standard parts are used. All parts are carefully cleaned, examined, and certain measurements made immediately prior to assembly for test. During the test, temperature, rate of pressure rise, maximum pressure, and rate of stroking are specified and controlled. The system is examined periodically during stroking to assure that excessive leakage of fluid is not occurring. Afterwards, the system is torn down. Metal parts and SBR cups are examined and remeasured. The brake fluid and any resultant sludge and debris are collected, examined and tested.

**S6.13.2 Apparatus and Equipment.** Either the drum and shoe type of stroking apparatus (see Figure 1 of SAE Standard J1703b), or the stroking fixture type (see Figure 3 of SAE J1703b) arranged as shown in Figure 2 of J1703b. The following components are required.

(a) *Brake assemblies.* With the drum and shoe apparatus: four drum and shoe assembly units (SAE RM-29a) consisting of four forward brake shoes and four reverse brake shoes with linings and four front wheel brake drum assemblies with assembly component parts. With stroking fixture type apparatus: four fixture units including appropriate adapter mounting plates to hold brake wheel cylinder assemblies.

(b) *Braking pressure actuation mechanism.* An actuating mechanism for applying a force to the master cylinder pushrod without side thrust. The amount of force applied by the actuating mechanism shall be adjustable and capable of applying sufficient thrust to the master cylinder to create a pressure of at least 70 kg/sq cm (1,000 psi) in the simulated brake system. A hydraulic gauge or pressure recorder, having a range of at least 0 to 70 kg/sq cm (0 to 1,000 psi), shall be installed between the master cylinder and the brake assemblies and shall be provided with a shut-off valve and with a bleeding valve for removing air from the connecting tubing. The actuating mechanism shall be designed to permit adjustable stroking rates of approximately 1,000 strokes per hour. Use a mechanical or electrical counter to record the total number of strokes.

(c) *Heated air bath cabinet.* An insulated cabinet or oven having sufficient capacity to house the four mounted brake assemblies or stroking fixture assemblies, master cylinder, and necessary connections. A thermostatically controlled heating system is required to maintain a temperature of  $70 \pm 5^\circ\text{C}$  ( $158 \pm 9^\circ\text{F}$ ) or  $120 \pm 5^\circ\text{C}$  ( $248 \pm 9^\circ\text{F}$ ). Heaters shall be shielded to prevent direct radiation to wheel or master cylinder.

(d) *Master cylinder (MC) assembly (SAE RM-15a).* One cast iron housing hydraulic brake system cylinder having a diameter of approximately 28 mm (1 1/8 inch) and fitted for a filler cap and standpipe (see S6.13.2(e)). The MC piston shall be made from SAE CA360 copper-base alloy (half hard). A new MC assembly is required for each test.

(e) *Filler cap and standpipe.* MC filler cap provided with a glass or uncoated steel standpipe. Standpipe must provide adequate volume for thermal expansion, yet permit measurement and adjustment of the fluid level in the system to  $\pm 3$  ml. Cap and standpipe may be cleaned and reused.

(f) *Wheel cylinder (WC) assemblies (SAE RM-14a).* Four unused cast iron housing straight bore hydraulic brake WC assemblies having diameters of approximately 28 mm (1 1/8 inch) for each test. Pistons shall be made from unanodized SAE AA2024 aluminum alloy.

(g) *Micrometer.* Same as S6.6.2(d).

### **S6.13.3 Materials.**

(a) *Standard SBR brake cups.* Eight standard SAE SBR wheel cylinder test cups, one primary MC test cup, and one secondary MC test cup, all as described in S7.6, for each test.

(b) *Steel tubing.* Double wall steel tubing meeting SAE specification J527. A complete replacement of tubing is essential when visual inspection indicates any corrosion or deposits on inner surface of tubing. Tubing from master cylinder to one wheel cylinder shall be replaced for each test (minimum length 3 feet). Uniformity in tubing size is required between master cylinder and wheel cylinder. The standard master cylinder has two outlets for tubing, both of which must be used.

#### S6.13.4 Preparation of test apparatus.

(a) *Wheel cylinder assemblies.* Use unused wheel cylinder assemblies. Disassemble cylinders and discard cups. Clean all metal parts with ethanol (isopropanol when testing DOT 5 fluids). Inspect the working surfaces of all metal parts for scoring, galling, or pitting and cylinder bore roughness, and discard all defective parts. Remove any stains on cylinder walls with crocus cloth and ethanol. If stains cannot be removed, discard the cylinder. Measure the internal diameter of each cylinder at a location approximately 19mm (0.75 inch) from each end of the cylinder bore, taking measurements in line with the hydraulic inlet opening and at right angles to this centerline. Discard the cylinder if any of these four readings exceeds the maximum or minimum limits of 28.66 to 28.60 mm (1.128 to 1.126 inch). Measure the outside diameter of each piston at two points approximately 90 degrees apart. Discard any piston if either reading exceeds the maximum or minimum limits of 28.55 to 28.52 mm (1.124 to 1.123 inch). Select parts to insure that the clearance between each piston and matching cylinder is within 0.08 to 0.13 mm (0.003 to 0.005 inch). Use unused SBR cups. To remove dirt and debris, rinse the cups in 90 percent ethyl alcohol for not more than 30 seconds and wipe dry with a clean lint-free cloth. Discard any cups showing defects such as cuts, molding flaws, or blisters. Measure the lip and base diameters of all cups with an optical comparator or micrometer to the nearest 0.02 mm (0.001 inch) along the centerline of the SAE and rubber-type indentifications and at right angles to this centerline. Determine base diameter measurements at least 0.4 mm (0.015 inch) above the bottom edge and parallel to the base of the cup. Discard any cup if the two measured lip or base diameters differ by more than 0.08 mm (0.003 inch). Average the lip and base diameters of each cup. Determine the hardness of all cups according to S7.4. Dip the rubber and metal parts of wheel cylinders, except housing and rubber boots, in the fluid to be tested and install them in accordance with the manufacturer's instructions. Manually stroke the cylinders to insure that they operate easily. Install cylinders in the simulated brake system.

(b) *Master cylinder assembly.* Use an unused master cylinder and unused standard SBR primary and secondary MC cups which have been inspected, measured and cleaned in the manner specified in S6.13.4(a), omitting hardness of the secondary MC cup. However, prior to determining the lip and base diameters of the secondary cup, dip the cup in test brake fluid, assemble on the MC piston, and maintain the assembly in a vertical position at  $23 \pm 5^{\circ}\text{C}$  ( $73.4 \pm 9^{\circ}\text{F}$ ) for at least 12 hours. Inspect the relief and supply ports of the master cylinder; discard the cylinder if ports have burrs or wire edges. Measure the internal diameter of the cylinder at two locations (approximately midway between the relief and supply ports and approximately 19 mm (0.75 inch) beyond the relief port toward the bottom or discharge end of the bore), taking measurements at each location on the vertical and horizontal centerline of the bore. Discard the cylinder if any reading exceeds the maximum or minimum limits of 28.65 to 28.57 mm (1.128 to 1.125 inch). Measure the outside diameter of each end of the master cylinder piston at two points approximately 90 degrees apart. Discard the piston if any of these four readings exceed the maximum or minimum limits of 28.55 to 28.52 mm (1.124 to 1.123 inch). Dip the rubber and metal parts of the master cylinder, except the housing and push rod-boot assembly, in the brake fluid and install in accordance with manufacturer's instructions. Manually stroke the master cylinder to insure that it operates easily. Install the master cylinder in the simulated brake system.

(c) *Assembly and adjustment of test apparatus.* When using a shoe and drum type apparatus, adjust the brake shoe toe clearances to  $1.0 \pm 0.1$  mm ( $0.040 \pm 0.004$  inch.). Fill the system with brake fluid, bleeding all wheel cylinders and the pressure gage to remove entrapped air. Operate the actuator manually to apply a pressure greater than the required operating pressure and inspect the system for leaks. Adjust the actuator and/or pressure relief valve to obtain a pressure of  $70 \pm 3.5$  kg/sq cm ( $1,000 \pm 50$  psi). A smooth pressure-stroke pattern is required when using a shoe and drum type apparatus. (Figure 4 of







